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Contributions.

Freight Car Capacity and Loading.

Southern Pacific Company,  
San Francisco, Cal., Nov. 3, 1899.

To the Editor of the Railroad Gazette:

In your issue of Oct. 20 you commented editorially on the question whether the average loading of freight cars during the past fifteen years had increased in the same ratio as car capacity.

We have kept a record of the average capacity of our freight cars for a number of years back and of the average number of tons carried in each loaded car. From the statement attached giving these statistics, you will observe that on our lines east of El Paso, or the Atlantic System, the increase in carrying capacity from 1887 to 1899 has been 46 per cent., while the increase in carload has been 72 per cent. While on our lines west of El Paso, or the Pacific System, the increase in the carrying capacity from 1889 to 1899 has been 25 per cent. and the increase in carload 50 per cent. Or, to put it in another way, in 1887, on the lines east of El Paso, each loaded car was loaded to 61 per cent. of its capacity; in 1899 each loaded car contained 72 per cent. of its capacity. On the Pacific System in 1889, each loaded car was loaded to 56 per cent. of its capacity, and in 1899 to 68 per cent. of its capacity.

J. KRUTTSCHNITT.

Southern Pacific Co.—Average capacity and loading of freight cars, tons.

Atlantic System:	Capacity.	Load.
1887.....	16.32	9.90
1888.....	17.75	10.38
1889.....	17.76	10.46
1890.....	18.05	11.04
1891.....	19.86	11.67
1892.....	20.60	12.07
1893.....	21.26	13.10
1894.....	21.26	13.75
1895.....	21.76	14.08
1896.....	21.76	14.73
1897.....	21.76	15.02
1898.....	22.33	15.75
1899.....	23.81	17.03
1899 compared with 1887:		
Increase in carrying capacity, 46%.		
Increase in carload, 72%.		
Pacific System:	Capacity.	Load.
1889.....	18.84	10.62
1890.....	19.20	11.70
1891.....	19.56	12.11
1892.....	20.03	11.98
1893.....	20.36	12.75
1894.....	20.65	13.58
1895.....	21.35	13.52
1896.....	21.54	14.21
1897.....	21.64	14.53
1898.....	22.10	15.04
1899.....	23.63	15.96
1899 compared with 1889:		
Increase in carrying capacity, 25%.		
Increase in car load, 50%.		

The Am. Soc. C. E. Rail Section.

Chicago, November 1, 1899.

To the Editor of the Railroad Gazette:

I read your editorial on the American Society of Civil Engineers' Rail Section some time ago, and from the tone of the same judge that it expresses the general feeling of many of the Chief Engineers on the subject.

There seems to have sprung up, in the last year, with the railroads a belief that the heavy rails are not hard enough to stand the heavy traffic, and that they are not rendering as efficient wearing service as the light sections, and the failure of these rails to meet their expectations is charged up against the manufacturer. It is evident they are charging to the maker more than belongs to him and are condemning the heavy sections before they have been given a fair trial. These heavy sections have been laid on many roads having a larger mileage, by far, of

small narrow-headed rail. The engine drivers and car wheels have been worn to the narrow heads, hence, when they travel over the broad-headed American Society rail, the tread of the wheels is confined largely to the outer edge of these rails until such time as both rail and wheel tread have worn down to a bearing. Under these conditions the tread on the heavy rail, at first, may be said to be confined to two narrow strips from ¼-in. to ¾-in. wide on the outer edge of the head of the rail. This causes the metal to flow, and the trackmen and engineers jump to the conclusion that the steel is soft. I have seen as great a flow under the above named conditions in the first six months as in the following four or five years, but it is a difficult matter to convince the average trackman of these facts.

Only a few of the leading roads have, as yet, taken up the question of expansion, and it is a common thing to find steel laid with from ½ to ¾ in. expansion in main line track on the leading trunk lines. This, in itself, is sufficient to injure the best rail ever produced in a comparatively short time.

In looking over the records of failed steel for the past ten years I find that our company has been called upon to replace more than double the tonnage on individual sections—that is, sections devised by the roads, that it has on the American Society Civil Engineers' Standard.

In regard to the benefits derived from using the heavier and better designed rail sections, I will quote from P. H. Dudley, who has made careful measurements of the tractive force with a dynamometer: "Comparing the resistance of the Chicago Limited Express on stiff 80-lb. rails with that on 65-lb. rails, it makes a difference of 75 to 100 h. p. per mile." This saving of horse power per mile is due to the fact that the 80-lb. rails are stiffer, and hence the deflection or wave-motion under the wheels has been reduced to an extent sufficient to effect this great saving. If the leading railroads would go deeper into this subject, and could be convinced of the advantage to be gained by using a heavier section, viz., less number of men per section required to maintain a high standard of track, less wear and tear on rolling stock, less motive power required to haul a given load, and were convinced that these heavy sections would prove to be good wearing rails, there would be a great increase (and not decrease, as spoken of in this editorial) in the weight per yard over that used to-day.

INSPECTOR.

To the Editor of the Railroad Gazette:

I have yours with editorial of Railroad Gazette of October 26th, and the only criticism I would have to make is on your reasons of the reaction of the tendency toward heavy rails. I think your statement that there has not been sufficient carbon used in the heavy sections is true, but I think it is more the fault of railroads than the rail makers. In a large part of the country the railroads have been extremely conservative, and did not want to materially increase the carbon. They feared the rails would prove so brittle that there would be an excessive number of rail breakages and consequent liability to wrecks.

Again you say, that on account of higher prices the railroad companies must make the same tonnage cover more track. This is not universal experience as, first, the price of rails has risen less than any other iron and steel commodity. For instance, bar steel has risen from about 85 cents to \$2.50 per hundred. Billets are now selling at a higher price than rails, although they cost the manufacturer less. Plates have gone from 85 cents to \$2.75 a hundred, while rails have only gone from \$17 to \$35. In other words, while the price of rail has doubled, the price of other commodities in iron and steel have gone up three times. Again, the price of scrap has advanced more rapidly than rail. So that, to introduce heavy sections on an old track, the cost per mile has not materially increased, if you consider the amount received for the old rails.

A RAIL MAKER.

[The reader who wishes to follow this discussion should consult the Railroad Gazette, Oct. 6, p. 694; Oct. 27, p. 747; Nov. 10, pp. 771 and 780.—Editor.]

The New East River Bridge.

The specifications have been issued and bids asked for further material and work on the New East River Bridge. The bids now called for are for the cables, the suspenders, the cable bands and other parts belonging to the main structure. This contract therefore will bring the bridge up to the suspended structure and floor system, the contracts for the anchorages, the towers and the approach spans having already been let. These bids will be opened Dec. 7.

The contractor is to undertake to have his work done within 10 months after the cable saddles are set in place on the tops of the steel towers, and he must give a bond of \$400,000, and will be subject to a penalty of \$1,000 a day for delay. Bids will not be considered from any parties who have not the requisite plant and facilities and who have not been in successful operation on work of a similar character for at least one year. Among the specifications we find this clause: "All superintendents,

foremen, melters, helpers and others engaged in the manufacture of the steel for this work shall be men experienced in this line of work and of sufficiently recent practice to insure the best results." This is quite an unusual clause and is an example of the great care which has been taken to get nothing but the best for this work. The specifications further say that the inspection will be very thorough and tests will be made and repeated as often as the engineer thinks necessary. No steel will be accepted unless it is made especially for this work, and "no steel should be made or cast unless the engineer or his representative is present."

The cables to be contracted for now are four in number. Each is to be made of No. 8 steel wire in 37 strands, each strand containing 281 wires laid straight. The total number of wires therefore in each cable is 10,397. In building, each strand will be held together by temporary bands of wire which will be afterward removed and the whole mass of wire clamped into one cylindrical cable by cast steel bands, which will carry the suspenders which support the floor beams. These cables are to be covered with steel plates, overlapping, to shed water.

Each cable strand will be built with a smaller versed sine by several feet than it will have in its final position. This will be accomplished by putting the shoe at one end of the strand several feet back of its final position. When the strand is finished the shoe will be placed on the permanent pin and the strand adjusted to its proper versed sine.

The first specification under the heading of steel for wire is that all steel for wire shall be made in an open hearth furnace lined with silica. In this way one escapes the vexed word "acid," which caused some talk in earlier calls for bids. This steel is to be made entirely from pig iron with no admixture of scrap of any kind. The use of iron ore for the reduction of carbon in the furnace charge will be allowed according to the usual practice. During the reduction of the steel it may not be decarbonized below 0.1 of one per cent. The finished steel shall not contain more than the following:

Phosphorus.....	0.04
Sulphur.....	0.03
Manganese.....	0.50
Silicon.....	0.10
Copper.....	0.02

The wire, when drawn, must have an ultimate strength of 200,000 lbs. or more to the square inch, an elongation of at least 2½ per cent. in five feet and of at least five per cent. in eight inches. It must be capable of being coiled cold around a rod of its own diameter without cracking. It must be made in lengths of not less than 4,000 ft.

Steel for the cast parts must also be acid open hearth. A higher limit is allowed for the phosphorus, sulphur, manganese and silicon elements. The contractor will be paid every month to the amount of 70 per cent. of the estimated value of the work which he has done.

Examination for Defects of Vision.\*

The semaphore railroad signal, which is coming more and more into use as the best position signal, consists of a movable arm about 46 in. long and 9 wide, attached to a vertical post so that it can be set in a horizontal position to indicate danger, stop; or, inclined half way or more toward the vertical post to indicate go ahead.

In order to have plenty of room to stop a train, such a signal should be distinctly seen at a distance of half a mile. If at this distance lines are drawn from each end of the arm of the signal to the eye of the observer, the lines will form with each other an angle of about five minutes; in other words, the length of the arm will be seen as subtending a visual angle of five minutes. In the same way the width of the arm will appear to subtend an angle of one minute. These angles, which have been chosen by signal men as best answering their needs from a practical standpoint, are the same which have been found to represent the average normal acuteness of vision. Some years ago Professor Snellen found, as the result of a large number of examinations, that the average normal eye could easily distinguish letters whose height subtended a visual angle of five minutes, and the different parts of the letters an angle of one minute, and such letters, printed in a square space, have been universally adopted as the measure of normal acuteness of vision. Therefore, it follows that if a man has sufficient acuteness of vision to read the test letters when seen under the standard angle of five minutes, he will also be able to clearly see the semaphore signal, under ordinary conditions, at a distance of half a mile. There is, however, this difference between the signals and the letters, that with the former it is only necessary to see whether the arm stands horizontal or at danger, or inclined in the position of safety, whereas with the letters much smaller differences must be noticed, as between C, D, O, or E, F, P, etc.

It is found in practice that the semaphore arms can be read correctly and easily by men who have only ⅓ of normal acuteness of vision, as measured by the letters, and I have recommended to several railroads that it will be safe to allow as a minimum standard ⅓ of normal vision for the re-examination, every three years, of their engineers, firemen, towermen and draw tenders. This applies to those employees already in the service in those occupations, who have become valuable men on account of their familiarity with their work,

\*A paper by Dr. Charles H. Williams, of Boston, read before the American Medical Association at Columbus, O., 1899. Condensed.



train rules, etc., and it may be regarded as sufficient if this vision is shown with both eyes open. Before testing with both eyes open, each eye should be tested separately, and if it is found that one eye has  $\frac{2}{3}$  and the other less than that, a re-examination should be made every year, to be sure that the better eye is not losing ground.

Even with vision of  $\frac{2}{3}$ , as tested with the letters, a man can read the semaphore signals, although not so quickly and easily as with better vision, and I have recommended, as a minimum to be allowed in the re-examination of old employees, other than those mentioned above, who are engaged in the movement of trains, or the use of signals, an acuteness of vision of not less than  $\frac{2}{3}$  of normal, with both eyes open, each eye having first been tested separately as before.

These standards apply to the re-examination of old employees in any of the above occupations, every three years, and the tests should be made without glasses. There is no objection to the use of glasses for near work, such as the reading of train orders, etc., for in all normal eyes there is, with advancing years, a decrease in the power of focusing for near objects, which requires the use of glasses, but such eyes will see distant objects as well as ever without a glass. In the case of men whose occupation requires them to be out of doors in all kinds of weather, it will be found that in fog, rain and snow, the glasses, if worn, will often be a hindrance rather than a help, and the tendency will be to take them off when the weather conditions are very bad, and thus reduce the vision to what it is without glasses.

I have examined the vision of an engineer who had only  $\frac{1}{3}$  vision in one eye and  $\frac{2}{3}$  in the other, without glasses, although in the favorable conditions of the physician's office glasses brought his vision up to  $\frac{2}{3}$ , or normal in each eye. In his case it would not be safe to count on his having more than  $\frac{1}{3}$  of normal vision when running through a fog, for the dampness would condense on his glasses so that he would probably find it better to take them off, and in case of accident through the fault of such a man it would be very difficult to prove whether he had his glasses on, or whether they were in good condition at the time of the accident, or not, and although he might resort to the expedient one engineer told me he used, of keeping a bottle of vaseline in his pocket to rub on his glasses in case of fog, even with this help the amount of vision might be a very uncertain quantity.

In the employment of new men a railroad company is in a position to select the best material from those who apply for work, and a standard of  $\frac{2}{3}$  without glasses, in each eye, tested separately, should be required for firemen, or for those who are likely to be promoted to the position of firemen or engineers, or for those where special acuteness of vision is required. For other occupations concerned with the movement of trains, a standard of  $\frac{2}{3}$  in one eye and not less than  $\frac{1}{3}$  in the other, without glasses, tested separately, should be required, for in employing new men it is not desirable that the minimum standard should be used which would be sufficient for continuance in the service after they have learned the business and become better able to do the work.

In fairness to the men these tests for vision should not be made when they are fatigued, and especially in re-examinations a man should be tested when he is fresh, and not at the end of a long run, for it is found that the fatigue of a long run will cause quite a perceptible diminution in the acuteness of the vision, as tested at the beginning and end of such a run; this is an additional reason for requiring a sufficiently high standard of engineers and firemen, so that such fatigue may not bring their vision below the safety point.

In examining men for entrance to railroad service, some test should be made for hypermetropia, a shorter length of the eyeball than normal, in order to avoid taking men who may have normal vision without glasses when they are young, and can overcome the hypermetropia by an effort of their accommodation, but who, as the power to keep up this effort diminishes with age, will sooner or later find that their vision without glasses is reduced below the required standard. The best way is to have the eyes of such applicants examined by a trained ophthalmologist, with the ophthalmoscope, in order to test the refraction and the condition of the interior of the eyes; if this can not be done, it is possible to detect most of the cases of hypermetropia amounting to two diopters, or more, where the vision remains normal without glasses, by having two pairs of glasses in spectacle frames, one pair of plain glass, the other with a convex lens of two diopters for each eye. The applicant is tested by giving him first one pair of glasses and then the other; if he can read the letters at twenty feet, through the plain glasses, but can not read them through the convex lenses, he is accepted, but if he can read them through both pairs of glasses he is rejected, as it shows he must have at least two diopters of hypermetropia, which would be enough to give him trouble later on.

The size of the test letters is a very important matter, and unfortunately the test letters on the market, published by different firms, and even by the same firm, are often inaccurate in their size and shape.

In order to subtend a visual angle of five minutes, when seen at a distance of twenty English feet, such test letters should have a height of  $\frac{1}{16}$  of an English inch, and the width of the different parts of the letters should be  $\frac{1}{16}$  of an inch, and for 30, 40 and 50 ft., the heights should be  $\frac{1}{20}$ ,  $\frac{1}{25}$  and  $\frac{1}{30}$ , respectively.

The most convenient test types are those published by the Rand-Avery Co., Boston. They are carefully printed on cards  $3\frac{1}{2} \times 9$  in., one line of letters on each card, with three cards, having a different arrangement of letters on each, for each of the required distances. This prevents reading the letters from memory, as the applicant can not tell which of the cards will be shown him, and finds it difficult to read the letters unless he really sees them.

In testing the color perception, two methods should be used: 1, a test by comparison of colors, in which no names are given, but colors are selected which look

like the test color; 2, a test with lights of different colors so arranged that the intensity of the lights can be varied, and in which the person is asked to name the lights. The test with Holmgren's worsteds seems to be the best for the first, and a lantern in which various shades of red and green, either alone or combined with London smoke glass to alter the intensity of the color, seems to be the best for the second test. I have found it helpful to have the sets of Holmgren worsteds provided with small metal tags, so that each of the 125 skeins can be numbered, and a record kept of the skeins selected, in every case, as similar to the test skeins. The odd numbers are given to the correct colors, and even numbers to the confusion colors; this makes it much easier to check up the reports of the examinations at the central office, to which they should be sent for approval, and if any question arises in regard to any case it allows the controlling officer to make a reproduction of the colors actually selected. Only two test skeins are used, the standard green, with which the fact of defective color perception is determined, and the rose, which serves to show whether the defect is more for green or red. The bright red test skein which is usually furnished with the Holmgren tests, in many cases only serves to confuse the result, especially when the amount of defective perception is small; and it does not add to the value of the test.

For a time I tried the lantern arranged by Professor Donders, and made by Kaagenar of Utrecht, for testing the color sense with lights, but this lantern is not easy to manipulate and does not have a sufficient number of colors.

Here Dr. Williams describes a lantern which he has used on the New York, New Haven & Hartford. He also uses the tagged Holmgren worsteds, as it is found that men who pass the tests with the worsteds show defects when tested with the lantern and vice versa. The doctor believes that if both tests are used no dangerous case will escape detection. The lantern has two revolving disks on its front, arranged on the same principle as the lights heretofore described in the Railroad Gazette. The lower disk has near its outer edge a series of 12 holes filled with red, green, blue and yellow glasses,

Dr. Williams' view that men should be tested both by daylight and with lights in a dark chamber.

Dr. Frank Allport, of Chicago, emphasized the importance of having examinations made by ophthalmologists. Physicians are employed to examine men's hearts and lungs, and certainly the eyes and ears ought to be deemed equally important. Dr. Reynolds has found color-blindness in men who had already been examined by Superintendents and Trainmasters. But to require men to name the colors of dress goods is, he thinks, turning back a good many years.

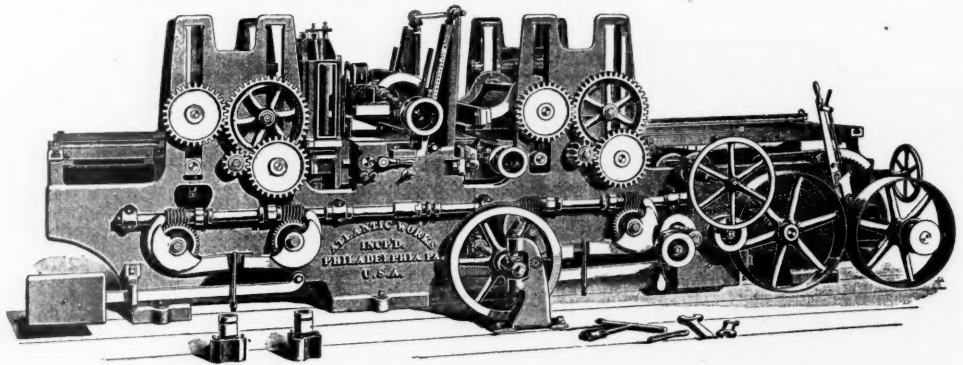
Dr. C. E. Norton, of Lewiston, Me., spoke of the injustice of dismissing engineers and firemen who found it necessary to wear spectacles. Such men after having had long experience are often better than others inexperienced whose eyes are normal.

Dr. A. B. Randall, Philadelphia: Dr. Thomson, of the Pennsylvania road, examines the men in groups of a dozen. If the more conservative men see a color-blind man under examination and witness his failures they will have very definite objections to his serving on a train on the line where they run.

#### A Car Sill and Timber Dressing Machine.

The accompanying engraving shows an improved timber planing machine designed especially for working car sills and heavy bridge timbers. These are made to surface and square up on four sides, all at one time, pieces as large as 20 in. wide and 16 in. thick and will reduce timbers as much as two inches at one cut when required.

The cylinders are placed near each other in order to plane absolutely square. All cutting cylinders are of crucible steel forgings, the journals are forged solid with the cylinders and are  $2\frac{1}{2}$  in. in diameter and 14 in. long. The lower cylinder is mounted in a frame which can be drawn out at one side of the machine to facilitate sharpening and setting knives,



Car Sill and Timber Dressing Machine for Heavy Work.

any one of which can be brought in turn opposite the opening in the lantern through which the light shines. In the lower disk there are four shades and intensities of red, three of green and two of yellow. A smoke glass lens is used to darken the colors. The upper disk, which is fixed in the same relation to the light opening, has a number of very small holes so as to give the effect of a distant light. The smallest hole is two millimeters, or five-sixty-fourths of an inch in diameter, which at 20 ft. corresponds to an ordinary switch light lens at 1,500 ft.

On the New Haven road the examiner reports first on the acuteness of a man's vision, examining the right eye and the left eye separately and also making a further record with both eyes open. After this a reading test is made, with and without glasses, both eyes being open. The smallest size type which can be read is noted and an examination is also had on written train orders. There is also a careful test with one eye, and with both eyes, looking toward a picture of a semaphore drawn on a card. This is made without glasses. The color sense is tested by recording the numbers of the skeins selected to match green and to match rose color; and in the test with the lantern a record is made of the size of the opening used and the names given, by the man examined, to the colors shown to him. For testing the ears, right and left separately, an acoumeter is used and a record is made of the greatest distance at which this can be made. This acoumeter was devised by Sharp & Smith, of Chicago, for use on the Chicago, Burlington & Quincy.

#### Discussion.

Dr. J. E. Minney, Topeka, Kan., described the practice on the road with which he is connected. He has the men name the colors on dresses or hats worn by women passing the office, and thus sometimes detects errors which had not been detected by other means.

Dr. H. Gifford, Omaha, Neb., held that a thorough ophthalmoscopic examination should be made of every man. To prevent memorizing of letters he would use a piece of pasteboard with a hole which allows only one letter to be seen at a time. Dr. Gifford called attention to the necessity of examining the eyelids for trachoma.

Dr. D. S. Reynolds, of Louisville, Ky., confirmed

and when in place can be raised or lowered to the level of the bed plate. The pressure bars are of the most improved type. There are eight feed rolls, each 8 in. in diameter and each driven by extra heavy and wide faced gears. When taking heavy cuts, the back (or out-feeding) rollers can be set to the required height and then disconnected, and only the in-feeding rollers raised and lowered.

The lower front rollers may be raised or lowered to take a cut without altering the cylinders or changing the size of the finished work. The rates of speed are 20, 40 and 60 ft. a minute. The side cutter spindles are made of the best crucible steel and are  $2\frac{1}{4}$  in. in diameter. They are mounted in three long self-oiling bearings lined with anti-friction metal. The machine is belted with two six-inch belts from the front or in-feeding end of the machine, where are placed all levers and wheels for controlling the movements. This machine weighs, complete, 17,000 lbs. and occupies a floor space of 17 x 10 ft. It is made by the Atlantic Works (Incorporated), Philadelphia.

#### Lubrication of Cars.

At the November meeting of the Central Railway Club, Messrs. G. N. Dow and John Mackenzie made the following report on lubrication of freight and passenger equipment:

All boxes on passenger equipment cars should be re-packed at least once a year, the re-packing to commence about the first of May each year, using one-half old and one-half new packing, taking the better portion of the old and turning the balance over to freight car use if considered to be in fair condition. Cars should be suitably marked on the trucks, showing the date re-packed. All passenger equipment cars going through the shops for overhauling should be entirely re-packed, and where wheels and axles are renewed, new brasses should be used. Particular attention should be paid to the condition of the trucks, close attention being given to the equalizing bars and pedestals, also to the renewal of dust guards if defective. Oiling of cars to be done only at ends of road, unless cars are put in train at an intermediate station; no oiling to be done other than the above unless made necessary by reason of hot box or other cause of like nature. All boxes should, however, be opened at main line in-



spection points and examined as to their condition.

All freight cars should be re-packed whenever stopped for repairs, using the old packing turned over from passenger equipment with the addition of such new packing as may be necessary. Trucks should be put in proper condition, particularly dust guards and oil box covers, also boxes re-packed where wheels and axles have been renewed—new brasses to be used in such cases. Packing that is removed, if in good condition, should be put to soak for at least forty-eight hours and may then be used again under freight cars. Oiling to be done similar to passenger. Close attention should be given to cars received in interchange and such quantities of packing used as may be deemed necessary to put car in good condition to run safely over the line. In cases of hot box would suggest the use of saturated waste instead of oil.

Great care should be taken in all cases of cars re-packed to see that it is done in a manner to insure the proper lubrication of the journals.

Your Committee suggests the use of an oil equal in quality to the Galena car oils; the use of Perfection packing for both passenger and freight; the use of lighter oil in winter than in summer; that all packing be allowed to soak at least forty-eight hours before using; that all shops and inspection points be instructed as to a uniform manner of packing the boxes that the use of cooling compounds or patented packing is unnecessary; that boxes be examined at least every 200-mile run; that the use of oil cans by train crews be abolished, crews to be supplied with saturated waste instead.

#### Automatic Temperature Control for Passenger Cars.

The Powers Regulator Company, Chicago, has for some time been working on an automatic apparatus for controlling the temperature in passenger cars, and the "Powers" system, largely used in buildings

tached a spring F, which tends to hold the lever and disc up against the valve mechanism in the chamber G. Leading to the chamber G are two air passages H and I, and the thermostat is attached, by means of two screws at the upper end, to a bracket permanently secured in position. This bracket has ports corresponding to H and I, one for supplying the air, and the other for conducting it to the diaphragm, which operates the valve or damper. The air taken from the brake system is admitted through H under a pressure of about 15 lbs., and the passage of this air into chamber G is regulated by the valve J, which is held shut by a coil spring. Back of chamber G is an elastic diaphragm K, having flanges on either side and fastened together, and within the flange M is located an escape valve L upon which the point of the supply valve J rests; valve L tending to remain open by reason of the spring underneath its cap. When the temperature rises sufficiently to cause the disc A to expand and move the flange M, the first action is to close the passage under the escape valve L, its spring being weaker than that in valve J. If the expansive motion is continued after valve L is seated, the valve J is lifted from its seat and air is allowed to flow into the chamber G. As the air accumulates in chamber G it exerts a pressure upon the elastic diaphragm K in opposition to the expansive force of the disc; so whenever there is sufficient pressure in G to balance the pressure exerted by the disc A, the valve J returns to its seat and no more is permitted to pass. Should the temperature of A increase, its pressure upon the flange M will also increase, and this will cause the valve J to open until sufficient air is admitted to G to again equalize the pressure. In the same way, if the temperature falls, the pressure within the disc A becomes less the disc contracts and the overbalancing air pressure in G results in a reverse movement of the flange M, and this permits the escape valve L to raise from

hold this valve ordinarily in a partially closed position, so as to maintain the desired temperature. If for any cause, the temperature rises above the point of adjustment, the air pressure increases correspondingly and the valve is entirely closed. If the temperature falls, the air pressure becomes less and the valve partially opens, and if the temperature falls a degree or two below the adjustment the valve is fully opened. Under ordinary conditions, when the temperature is once reached, the valve is held slightly open, and a continuous flow of steam passes to the heating coils, so that the temperature is maintained almost constant.

#### Some Deductions from Road Tests of Locomotives.

A paper at the September meeting of the New York Railroad Club, by Mr. R. P. C. Sanderson, of the Norfolk & Western, showed that in making road tests we generally attempt and expect too much. The paper and the discussion showed that single trip records in locomotive tests are unreliable and that on the other hand laboratory tests have not all the advantages sometimes claimed for them. We might put it even stronger and fairly conclude that single road tests may give not only inaccurate results, but may show results exactly contrary to the facts. Freight train tests were referred to in the paper, and Mr. Sanderson expressed the belief that very fair road tests can perhaps be made with passenger trains under favorable conditions.

Most of the special tests which Mr. Sanderson discussed were made on a 54-mile section of a mountain division, having a 10-mile grade about 60 ft. to the mile, with a number of short momentum grades and two moderately long hard pulls. As far as possible, the records of the trips were taken under exactly the same conditions and with the same observers. In order to prove his point, that single tests are unreliable, he reported the results of the more im-

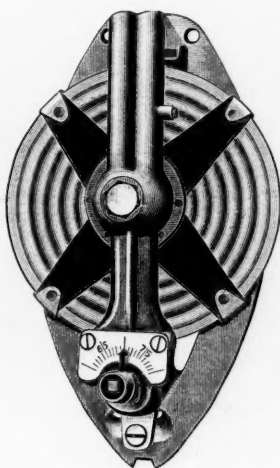


Fig. 1.

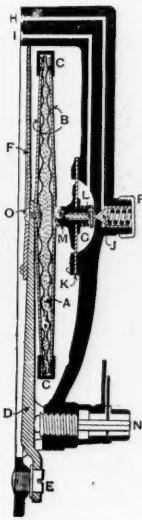


Fig. 2.

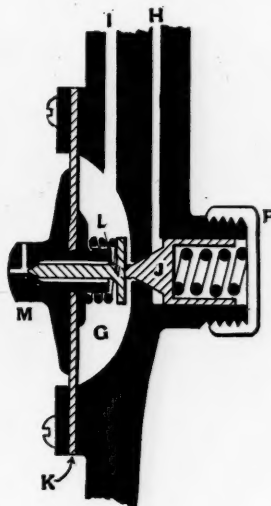


Fig. 3.

Powers' Thermostat for Passenger Cars.

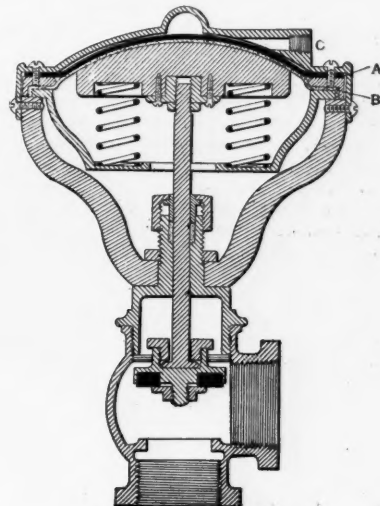


Fig. 4.—Diaphragm Valve.

for the past five years, has now been so modified as to make it applicable to passenger service. During last winter this apparatus was tried on a number of roads, and the results of these tests show that a practically uniform temperature is maintained.

In equipping a car for automatic control, a thermostat is placed in the center of the car on a panel between windows, and this is connected to the auxiliary air reservoir by a small tube behind the woodwork, a reducing valve being placed in the pipe to bring the air pressure down to about 15 lbs. Only a small quantity of air is needed and the opening in the reservoir is not over 1/32 in., so the working of the brakes is not affected. Other small air pipes lead from the thermostat to diaphragm valves, one at either end of the car, which valves control the passage of steam through the supply pipes into the radiator and heating coils. These valves are placed in the same manner as those ordinarily used for hand control. Where Baker or other coal-burning heaters are used the draft dampers are worked in the same way as the supply valves are operated in steam heated cars.

Fig. 1 shows the front of the thermostat, one-half actual size, Fig. 2 a section of the whole, and Fig. 3 an enlarged section of the valve mechanism. It will be seen that the thermostat consists of a frame carrying an expansible disc A, which contains a volatile liquid having a boiling point about 55° Fahr. At a temperature of 70° the pressure of the vapor within the disc is about 4 lbs. per sq. in. This pressure varies with changes of temperature, and produces a variation in the thickness of the disc. To give additional strength and elasticity, the steel cross springs B are mounted on either side of the disc and fastened together by the clips C. The disc is attached by a single screw O to the lever D, which rests at its outer end upon the adjusting screw E, which serves as its fulcrum. To this lever is at-

its seat, so that a portion of the air in G is discharged. When the pressure in G becomes equal to the diminished pressure of the disc A, the valve L returns to its seat, so that the pressure of the air in G is maintained in direct proportion to the temperature of the disc A. Resting upon the lever D is the adjusting screw N, squared to receive a key and carrying near its upper end a pointer which traverses a figured scale by means of which the thermostat may be set to carry any desired temperature within its range, which is usually from 60 to 80° F. When this pointer is turned to the right, the lever D is moved downward against the spring F, and the disc is moved farther away from the flange M, so that a higher temperature is required to expand it sufficiently to operate the valve mechanism in G. Similarly, when the pointer is turned to the left, the lever and disc moved by the spring F approach nearer to the flange M and a lower temperature is sufficient to operate the valve mechanism. The disc A is removed by taking out the screw O, the valve J may be taken out by removing the cap P, and the valve L by taking out the diaphragm K.

The port I connects with chamber G, and through it the air passes to the diaphragm which operates the valve shown in Fig. 4. The body is the same as that of an ordinary globe or angle valve and upon it is mounted a diaphragm in which the air pressure operates to force the stem downward, bringing the valve to its seat. Underneath the rubber diaphragm A, for protection against heat, is a sheet of felt, B, and below it is a wooden block to which the upper end of the valve stem is attached. Between the block and a bridge support below are two tempered steel springs which serve to open the valve when the air pressure is decreased or removed. The air is brought from the thermostat through the opening C at the right of the diaphragm. The graduated air pressure from the thermostat acting on the diaphragm serves to

portant observations which, in the main, were as follows:

(1) One of the engines used in the tests was of a new class, having a large extended wagon top radial stay boiler. The engineman had for years run with engines having Belpaire boilers and at first the results were not as favorable as later. At first the evaporation in pounds of water per pound of coal from and at 212° F. was 12.85, which was gradually reduced to as low as 9.5. Had these results been compared for the purpose of ascertaining the merits of one kind of coal as against another, or of a feed water heating device, it would have shown a saving of 35.2 per cent. and might have led to placing a year's contract for coal with a new company or led to the application of a large number of worthless feed water heating devices.

(2) In testing one engine with piston valves the tonnage was steadily increased from 733.5 to 898.5, a considerable overload. The results obtained, however, were exactly contrary to what were to be expected. The coal per hundred ton-miles decreased steadily from 13.2 to 11.7. The reason for this decrease was twofold: In the first place, the engine crew liked the engine and handled it with care. In the second place, the distance during which the engine was exerting itself to the maximum, and therefore consuming fuel wastefully, was only about 30 per cent. of the entire distance. During the rest of the trip the engine was not overtaxed, and, Mr. Sanderson says "was piling up ton mileage faster in proportion than she had consumed wastefully on a short portion of the run; so that the net result was the saving of coal per ton mile for what might be called excessive overloading of the engine."

(3) To obtain some further light on the quantity of coal required per ton-mile, 10 trips were made with loaded coal trains varying from 2,000 to 2,450 tons over a 133.6 mile division which was generally level, but which, with the exception of a few miles is really



a continuous succession of momentum grades. When the trains were not stopped at the bottoms of the grades, results showed that the coal per hundred ton miles was about the same for all tonnages. Although the tonnage was increased over 400 tons above the regular service rating, the coal per hundred ton miles varied only a decimal point or two, and this is explained by the fact that by running a little faster down the hill enough momentum was stored up to easily carry the train over the top of the next hill without working the engine much harder than usual. From this the lesson is drawn that where it is possible, stations, water tanks and other places where it is necessary to make a stop should be placed either on levels on top of the hills or just beyond the crest of the hills on roads having broken grades of this character. During one of these tests slippery rails which required sand being used and consequently increased the resistance, and the extra weight from rain which had wet the coal, caused the number of pounds per hundred ton-miles to increase about 12 per cent.

(4) In another case two trains, varying in weight by only 21.4 tons, the pounds of coal per hundred ton-miles increased from 10 to 14.8, the difference being due to frequent stops of one of the trains for blocks and for passing trains, the greater number of stops requiring an increased number of accelerations of the load, which was an important factor. This same fact was emphasized by subsequent trials with 2,000 ton trains. On one trip, with everything favorable, and another, over the same track, but made under unfavorable conditions, a difference of 18.1 per cent. was found in the coal per hundred ton-miles.

(5) A suggestive and important instance was also cited where simply the change of a fireman resulted in a jump of the coal consumption of 17 per cent.

Mr. Sanderson referred to long service tests and concluded in substance, that so many varying and uncertain factors enter into the question that little dependence can be placed even on such records. The personal element in engine performance is the most important factor of all, and for that reason the author of the paper is inclined to favor laboratory tests where most, if not all, the variables can be eliminated and each particular part or apparatus can be tested on its merits alone. Notwithstanding the sources of error, the author's general conclusion was that the road test was the only safe method from which well founded conclusions could be drawn to determine the haulage of tonnage.

One of the engines used on the special tests had a piston valve, while another with cylinders of the same dimensions (21 x 24 in.) had a plain slide valve, but no well-founded conclusions could be drawn from the indicator cards of the two engines. The piston valve engine consumed 12.5 lbs. per 100 ton-miles and made faster time than the slide valve engine did, while the latter was using 13.6 lbs. per 100 ton-miles, but the trips were too few to draw satisfactory conclusions.

#### The Railroads to the Klondyke.

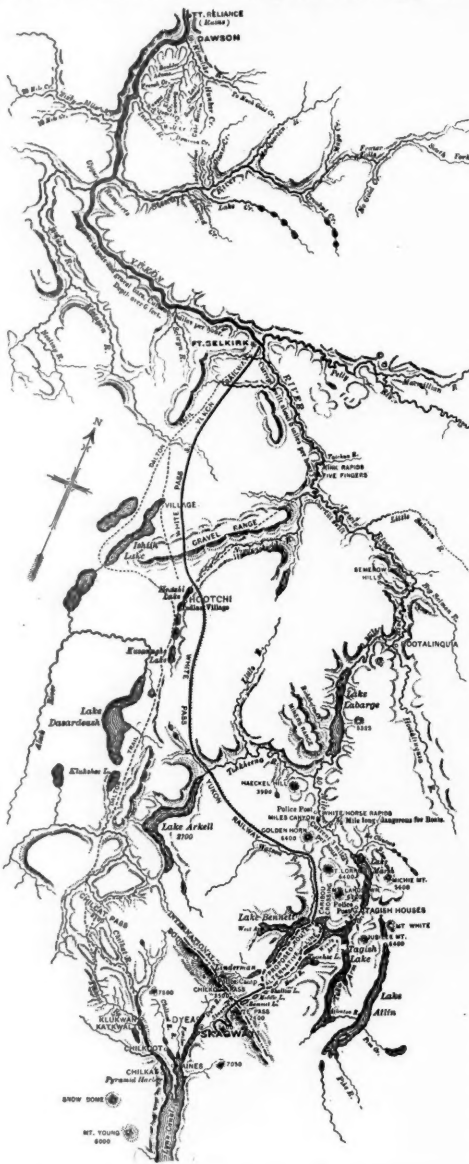
Under the title of "The Engineer and the Road to the Gold Fields," Mr. Harrington Emerson, in a recent number of the Engineering Magazine, presents some interesting facts with reference to the difficulties in reaching the Klondyke gold fields, and the methods whereby some of these have been overcome. We are indebted to the Engineering Magazine for the map and profiles here given. Without attempting to give the article at length, we condense certain features that may prove of most interest to the readers of the Railroad Gazette.

Aside from the dangers of snow and ice, the chief difficulty to be overcome is the Continental Divide. In Southeastern Alaska this rises as a rampart directly out of the sea, and only fourteen miles from the navigable waters of the ocean. Immediately beyond it are the headwaters of the Yukon, by which there is a direct route to the Klondyke. It is a curious fact that the distance from these headwaters to the mouth of the river in the Behring Sea is 2,000 miles, and nowhere else in the world are the navigable headwaters of a great river so near to the same ocean into which it finally empties. At the head of Lynn Canal, a navigable arm of the ocean, is Dyea Inlet, fourteen miles long and but one mile wide. Into this head empty the Dyea and Skaguay rivers, which flow down from the summits of the Divide, forming the well known Chilkoot and White Passes.

Nearly 5,000 people a month make the passage from Seattle and other Sound cities to Southeastern Alaska. Prices for packing over the Passes after the discovery of gold rose to 47 cents a pound over the Chilkoot Trail, and 60 cents over the Skaguay Trail. The first attempts of capital to relieve the situation were to put steamers on the Yukon. By this route, however, it is over 4,000 miles to Dawson from the Sound cities, against only 1,600 miles over the mountain trails. The river route is open only three months in the year, and boats are limited to a three-ft. draft, whereas the overland route is open eight months in the year.

The first attempt to improve the route over the mountains was made by George M. Brackett, who

completed a wagon road to the White Pass Summit in the spring of 1898, but so steep are the grades that two horses, with a single sled, can draw scarcely 400 pounds. The first improvement on the Chilkoot Pass was made when a horse whim was anchored at the summit, by means of which loads of over a ton weight could be hauled up on sleds. After the first season the horse gave way to a gasoline

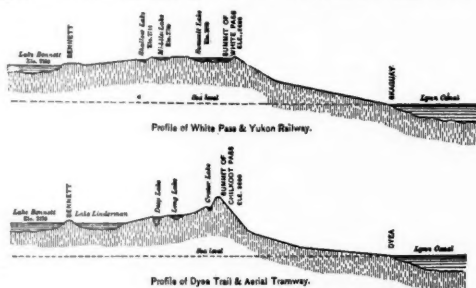


The Mountain Passes and the Railroad to the Klondyke

engine, his last act being to wind his own successor to the top.

As early as August, 1897, work was started on three "aerial" cable trams over the Chilkoot Pass route by the Chilkoot Railroad & Transportation Company, the Alaska Railroad & Transportation Company and the Klondyke Transportation Company. These three were ultimately consolidated and one line was finished in April, 1898. From Dyea, at the head of Lynn Canal, a wagon road runs almost without grade for nine miles to Canyon City. Thence by two routes—one from Canyon City to Sheep Camp, four miles, and the other from Sheep Camp over the summit, and a quarter of a mile down the other side the trolley carries goods limited to 400 pounds weight up the mountain. This is done on a suspended cable.

In 1898 a new competitor appeared in the proposed White Pass & Yukon Railroad. This has been completed from Skaguay over the White Pass to the



The Passes to the Klondyke.

International boundary line, 20 miles, and thence to Lake Bennett, 40 miles. It is to be carried about 300 miles further north to Fort Selkirk on the Yukon. This fort is only 174 miles above Dawson, to which there is a clear water navigation. Freight to Lake Bennett are thus reduced to three and one-half cents a pound, or only about one-twentieth the rate that prevailed two years ago.

The railroad is a remarkable example of pluck and skill. It would have been a great feat to grade 40 miles and build 20 miles over a similar rocky pass under favorable conditions, but this work was done in seven months, in a region without laborers, 1,000 miles from supplies, 3,000 to 4,000 miles from rolling mills and car shops, and against severe climatic conditions. In the first 20 miles the road rises 2,885 feet to the summit, without switchbacks. It is narrow gauge, but the roadbed and construction are adapted to broad gauge. It has so changed the conditions that contracts are now being made to carry goods from the Sound cities to Dawson, via the White Pass, at eight cents a pound.

#### Piece Work in a Railroad Shop.\*

In visiting one of our Eastern manufacturing plants recently, I was surprised to find that all the mechanics were averaging \$4 per day, the day rate being \$2.25, and I questioned the Superintendent as to why they could afford so great an increase, and he said that it was the best investment they ever made; the large increase in output and the decrease in cost per piece fully justified it. He said that his company has a similarly equipped plant, if anything more modern, in England, that the English mechanic was paid about \$1.50 to \$1.60 per day, but that they could ship the product of this American factory to England, and after paying all charges incident thereto it would not cost over 60 per cent. of what the English product did, notwithstanding the fact that the American mechanics made \$4 per day as against \$1.50 for the English mechanic. In talking with a number of the employees in this same shop, they told me that the only time any new machinists were hired was in the event of the death of one of the present employees, as the men were perfectly contented and resignations were unknown. This is a point that is well to remember, and demonstrates very plainly that if the piece work system is properly handled, a contented set of workmen is the result.

In organizing this system one of the first things to remember is that all of the workmen combined in any shop or department are smarter than any one individual, be he Foreman, Superintendent or General Manager, and that sharp practices or trying to take unfair advantage of the men in any way will react a hundred fold; absolute fairness is the first essential. It should be remembered that in establishing a piece work system it is not for a day or for a week, but for years to come; it not only affects one shop or one railroad company, but it affects all; no speculation in prices should be indulged in, but every job should stand on its merits. The rule should be to pay for each individual job what that job is worth, and not to depend upon one operation to help the other. There can be no hard or fast rule outlined for the setting of prices, and this must be largely a matter of judgment of the foreman and piece work inspectors in charge. You cannot figure revolutions of spindles and feed screw cuts per second of tools, travel of platens or other facts to fix prices that will work in all shops, as it will be found that machines vary according to local conditions, and also men vary according to surroundings. Some advocate what is known as the "fixed per cent." system. As an illustration, if a man is given a certain operation to do and he works the machine to what the foreman considers full capacity for say ten hours, this time is then reduced 10, 20 and 30 per cent. of whatever the agreed scale is, and his rate of pay is based on this reduced scale. If he earns, say \$2 per day, and it requires a day of ten hours to do the work, the piece price would then be made, if the 20 per cent. scale was in use, \$1.80. I have often wondered if it ever occurred to the people who use this method, that the men very soon find out how they are being handled and are governed accordingly; they may be able to make one or two prices at this rate, but from that time on they will find the men putting in enough time to easily overcome it. It would be far better in many cases to pay \$2.10 or \$2.20 instead of \$1.80, making some inducement for the men to continue to get full capacity out of the machine and consider their interests as well as the company's, dividing in a measure the profit with him. In many cases we pay more for an operation on the piece work scale than what it would cost the company to do this same work, day work. If a man by superhuman effort produces a large output of work in a given time, it is not fair to that man to expect that he can continue to do this day in and day out, and some allowance must be made. If, on the other hand, he does not do what is considered a fair day's work, then the piece work prices must be based accordingly. As soon as the men find out they are being treated in this manner, very little trouble will be experienced in arriving at the proper price to pay for the different operations.

It is very necessary in making up schedules, in the different departments, to make them as plain as possible, for while you may understand what they mean when first written, a few months hence, when foreman, inspectors or managers change, your successors

\*Extracts from a paper by Mr. R. T. Shea, in charge of the piece work system of the Chicago, Burlington & Quincy, presented before the Western Railway Club, October, 1899.



may not be able to interpret your meaning unless your schedules are worded so plainly that there can be no misinterpretation. Care on this point will save many misunderstandings. At the end of each week or each month, a bulletin should be posted in each department showing the amount each man earned, and the gain or loss through the working of the piece work system.

There should be a competent man in charge of each shop, or each railroad, to be known as Superintendent of Piece Work; he should be given charge of the entire department; his duties should be to pass on every individual price used, to study proper organization, improved methods of doing work, increasing the output, decreasing the cost, keeping in close touch with the Foreman, men and officials on his system, and allow no piece work price to be paid for obsolete practices, but try to bring about a right condition of affairs. Before establishing a piece work price, close supervision and close inspection are very necessary, and strict adherence to the schedule prices, after they are once established, regardless of what different foremen or inspectors may think. Until the price is properly changed, through the office, there should be no varying from it in the shops. If a man is working by the day, and you desire his pay raised, it is necessary to take it up step by step with the officials, and finally it must be approved by the General Manager, while by juggling piece work cards or schedules, the piece work inspector can raise the pay of the men higher than was intended. It will also be found advisable to have the piece work cards checked, both for clerical errors and the interpretation of the schedule, to see if the inspectors are paying what the schedule intends. After a man starts to work piece work, and it becomes necessary for any reason to give him day work in connection with it, a record should be made of the work performed as day work, stating the reason, and this should be turned into the office for the General Foreman or Master Mechanic to look into. Where this rule is enforced, the day work is soon reduced to the minimum. I do not believe in the differential rate system; if the prices once established are not cut, and the men given to understand that they will not be cut unless conditions change by improved machinery or otherwise, so as to make it necessary, it will be found that the men will get the full capacity out of the plant. In making up schedules every operation should be itemized, and a price paid for each operation, and in addition to that, wherever possible, many operations should be grouped under one head, thereby allowing one schedule number to be used for fifty or sixty operations. This will reduce the clerical work in that proportion and also liability to error. It will also be found that this will be more satisfactory to the men, and will help to increase the output, as men who have a week's work in sight will figure further ahead than if they only had one or two hours. After establishing a fair rate for a given operation, the company should be willing to pay it, and not want to reduce the price whenever, by a special effort, the men make a liberal profit. It will be necessary to have honest, conscientious piece work inspectors, checkers and foremen.

Prices should be based on thoroughly competent workmen and the standard of the workmen elevated as much as possible. The prices should be based on full capacity of machines, where the holding back practice is not resorted to. If this is done, it will be found that the ordinary or slow workman will soon fall into line with the best. If this is not done, and the price is based on medium workmen, the standard of the shop will be lowered, and the best men dragged down. It will also be found, as a man said to me the other day in regard to the output of an erecting shop, that conditions are widely different between piece work and day work. This man said that while they were working day work in their department, the Foreman was around hustling a gang of twenty men, trying to make a creditable showing, but now that the case is reversed the men in the gang were after the Foreman demanding that they be kept busy, and work furnished them in advance; that notwithstanding the fact that the force had not been increased, the output of the shop was double, their former average being six engines per month now twelve engines. The quality of the work was also improved because, under the piece work system each man is responsible for what he does, and if it is not done right it must be done over at his expense.

I believe it is generally considered that piece work properly installed will effect a saving of 30 per cent. in nearly all departments. This is, I think, a conservative estimate, and will be increased or decreased, according to the conditions and supervision. We sometimes think that we can calculate very closely on the capacity of a machine, but experience has proven that we cannot calculate the capacity of a man; and if by superior ability and extra hard work some men make big money, I should say let them make it. The increased output and decreased cost per piece amply pays the company. Whenever I read that piece work has increased the output in any shop 16 per cent., and increased the pay of the men only 8 per cent., I say at once: "There is a field for a piece work expert, and the hold back process

is in full sway." Whenever men do not make more than 8 or 10 per cent. over their wages, you can rest assured there is something wrong, and it will bear investigating.

Piece work develops specialists; experience has proven that men like to do the same thing day after day; they prepare for it, get good tools and better facilities for doing the work, and this greatly increases the output as well as the quality of the work, because men become experts in doing the same class of work all the time. I also find that men are very slow to resign piece work jobs, far more so than when working by the day, as there seems to be a certain fascination where the amount varies according to the energy displayed.

#### The Pottier & Stymus Patent Car Seat.

The Pottier & Stymus Company, of Lexington Avenue and Forty-first Street, New York City, now has on the market a reversible car seat designated by the makers as "No. 103," which is claimed to have all the good points of the best seats, to be strong and durable, and in addition to afford unusual facilities for storing satchels, etc., beneath the seat and for cleaning. The principal features of the construction of this seat are shown in Fig. 1. The back is supported by two reversing arms, as shown at A and A', though when it is in position, facing either way, these arms lie close together and have the appearance of a single arm. One of these arms is mounted at B and the other at C, and when the back is reversed the motion of the arms changes the foot rest D from one side to the other. The dotted lines show the position of the back, the reversing arms and the foot rest when midway between the two normal positions. The seat cushion is also tilted when the back is reversed, so that in either position it is higher at its front than at the back. The cushion is supported at F and G and is moved from one position to the other by means of the pin, E, in the foot rest frame which engages a slot in the frame of the seat.

In the design of this seat special care has been taken to give the maximum of sitting room while

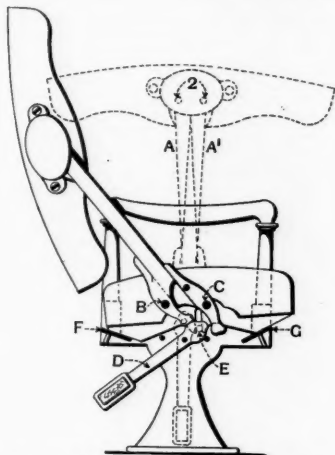


Fig. 1.—Pottier & Stymus Reversible Car Seat No. 103.

at the same time making the outside dimensions smaller than is usual.

The Pottier & Stymus Company also makes a ball-bearing seat, shown in Fig. 2. This is called the "No. 1,900 Glide-over." A section of the bearing, on a line crosswise of the car, is shown in the large scale sketch. The back of this seat is so fixed to the frame that it can be taken off by removing one screw. In this seat, as in the other, the foot rest is automatically changed when the back is reversed. The notches in the lower end of the slot in the foot rest frame serve as locks, holding the seat-back in position so that it cannot be moved without first lifting the foot rest. The cushion of this seat turns on its rocker, as in the other case. It is claimed that with this seat an 18 in. cushion gives as much sitting room as a 22 in. cushion affords in most seats of this type.

The "No. 1,900" is also made without an arm rest for use in street cars.

The sale of these seats is controlled by the United States Railway Supply Company, of New York City, which company represents the railroad department of the Pottier & Stymus Company.

#### Ratios of Expansion in Compound Locomotives.\*

The principal experiments were made with two compound locomotives, having two and four cylinders respectively, hauling special trains of known weights. The performance of each engine was judged from the force which it exerted when the speed became uniform.

This force was calculated from the formula:

$$Z = \left( 2.4 + \frac{V^2}{1000} + S \right) Q$$

\*From the Organ für die Fortschritte des Eisenbahnwesens, condensed in the abstracts of papers, Inst. C. E.

where Z is the tractive force of the locomotive;

V = velocity in kilometres per hour;

S = fall in line in 1,000;

Q = weight of train.

The following are the chief conclusions arrived at:

(a) With a fixed ratio of expansion for the high pressure cylinder and a decreasing ratio of expansion that is a retardation of the cut-off for the low pressure cylinder, the performance of the locomotive first improves, reaches a maximum, and then falls off.

(b) The best ratio of expansion for the low pressure cylinder is not materially altered by varying either the ratio of expansion of the high pressure cylinder or the speed of running.

(c) The advantage of a late cut-off in the low pressure cylinder is greater for high than for low speeds.

(d) The four-cylinder locomotive gives the best results when the cut-off is at 0.7 of the stroke, the two-cylinder locomotive with the cut-off at 0.8 of the stroke.

The above two different values, 0.7 and 0.8, can be reconciled by expressing the facts as follows: To give the best results, the volume of live steam in the low pressure cylinder at the point of cut-off, expressed as a multiple of the capacity of the high pressure cylinder, is about the same for both engines, viz., 1.70.

Along with the retardation of the cut-off in the low pressure cylinder, besides the increase in the tractive force of the locomotive, there is an increase in the amount of steam used. For an early cut-off this is unimportant; with the cut-off at 0.65 of the stroke the two increase in the same ratio, and beyond this the steam used increases in a greater ratio than the tractive force. From this it is concluded that the most economical point of cut-off in the low pressure cylinder of a locomotive is at 0.65 of the stroke.

#### Foreign Railroad Notes.

A "third-rail system" is to be tried in Austria. The Minister of Railroads has directed a trial on the

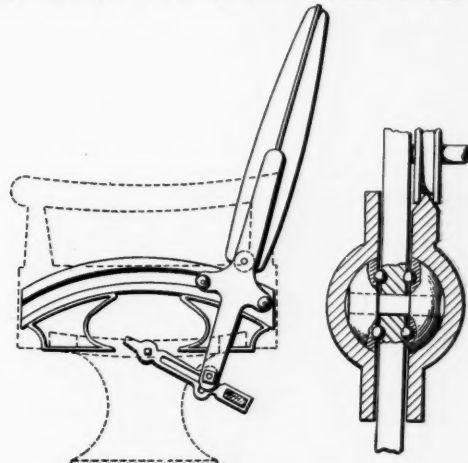


Fig. 2.—Pottier & Stymus Ball-bearing Car Seat No. 1900 Glide-over.

Vienna City Railroad of an electric train on a section of the road about 3.8 km. long to Michelbeuern. Two trains of four cars each are to be fitted up. Each train will consist of two motor cars (each car having two motors) and two cars placed between the motor cars. The power is to be obtained through a third rail laid between the others. The motors are so arranged that they can be connected together, and operated from ahead or behind.

In one of the great railroad stations in Budapest, artists have been engaged to decorate the walls with views of the principal Hungarian bathing resorts.

On the morning of Oct. 19 a special train, engaged by the London Daily Mail, was run over the Great Central Railway from London to Manchester, 206 miles, in three hours 28 minutes, exclusive of stops. For the first 40 miles out of London the speed was only about 40 miles an hour, the track being new, but beyond there the rate was increased to 70 and 80 miles an hour, and faster. From Leicester to Nottingham, 23 miles, the time, from start to stop, was 17 minutes, equal to 81.2 miles an hour. There was a dense fog throughout the journey.

You must not let your passengers get into danger. So decides a German court, practically. In this case a passenger left his train while it was halted in a station and started to cross a track on his way to another part of the station, as he had done before without interference on the part of the railroad employees. In this case he was struck by an engine and so injured that he finally died. His heirs sued the railroad for damages and recovered, it being proved that passengers were accustomed to cross the tracks at that station and that the railroad employees did not try to prevent the practice.





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## EDITORIAL ANNOUNCEMENTS.

**Contributions.**—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies in their management, particulars as to the business of the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and railroads, and suggestions as to improvements. Discussions of subjects pertaining to ALL DEPARTMENTS of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

**Advertisements.**—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns OUR OWN opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially either for money or in consideration of advertising patronage.

## Metal Draft Beams and Car Repairs.

In the discussion of metal draft beams for freight cars in our issue of October 13, mention was made of statements that from 60 to 70 per cent. of all cars standing idle for repairs have defective draw gear, but no attempt was made to divide these breakages between the couplers, draft rigging and draft timbers. We have made inquiry among a number of the larger roads but find that not many keep records that show how car repairs are divided. The Illinois Central, however, does so, and Mr. W. Renshaw, the Superintendent of Machinery, replies that at least 70 per cent. of the cars repaired on that road have defective draft gear; 20 per cent. of the total is due to defective draft timbers; about 20 per cent. to broken couplers, and coupler parts and rear end attachments, and 30 per cent. is due to defective timber bolts, lugs and lug bolts.

There is a great difference in the figures available. In 1893 Mr. E. D. Bronner of the Michigan Central was Chairman of a committee which reported to the Master Car Builders' Association on "Attachments of M. C. B. Couplers to Cars." The committee took the record of cars repaired by one company in one month and analyzed it. The total cars repaired were 13,865; the total due to defects of draft gear and draft timbers was 5,211, or 37½ per cent. of the whole. The committee justly thought that those figures called for serious consideration; but what is to be said if the percentage is really nearly twice as great?

Reports of repairs on the New York, Ontario & Western have been received from the Superintendent of Motive Power. These include freight repairs at the Mayfield yard in 1898, and also four monthly reports for repairs on passenger and freight cars at five yards. Mr. West's conclusions from these and other records should carry considerable weight, for much care has been taken to make them complete. He estimates that the percentage of repairs to freight cars, due to defective draft rigging, would be about 33 per cent., not to exceed 40. Reports of repairs for the entire road show that 75 per cent. of the running repairs are made on the Scranton Division, where the records show that fully as much labor was expended in brake repairs as in draft rigging. More than half the cars on the road have the Butler draft rigging, and a few have the Thornburgh (both single and tandem arrangement), and Mr. West says that both devices are great spring savers.

One of the great companies which writes to us on this matter of the ratio of draft gear repairs to all repairs, says: "Of all cars, foreign and individual, running over our lines, there are from 12 to 15 per cent. taken out of service for repairs to draft rigging." Another one of the large roads puts the proportion at 45 per cent. These wide differences

show how elusive and misleading statistics are unless we know exactly what they mean, and we do not know enough of the facts to try to explain the immense range between 12 per cent. and 70 per cent. We will, however, for the moment, consider this matter briefly in the light of the Illinois Central figures and hope to return to it later with more facts.

On this basis it would appear that well designed metal draft beams, in connection with the ordinary draft rigging, might eliminate the repairs due to defective draft timbers, 20 per cent., and probably most of the repairs to timber bolts, lug bolts and lugs,—in all something approaching 50 per cent. of the total cars repaired. The coupler and coupler attachment breakages would probably not be affected so long as the draft rigging had insufficient spring capacity. But with the use of better draft rigging, good couplers and metal beams, there would seem to be an opportunity for reducing the number of freight cars repaired by a very large percentage. It is unnecessary to emphasize the value of such a change although it would only be after a considerable period that the full benefits were realized, should railroads generally adopt stronger draft appliances for new cars and for repair work. That the improvements in this direction have not been more marked is largely due to the lack of statistics covering car repairs and to a tendency to make such estimates too low.

One other point may be briefly mentioned, which is that the ordinary draft rigging is responsible for many of the coupler breakages, the springs absorbing but a small proportion of the shocks received in service. Probably in no other way can the life of couplers be so lengthened as by increasing the capacity of the draft rigging. As to this, Mr. F. A. Delano, of the Chicago, Burlington & Quincy, says: "From some investigations I have made, I am reasonably convinced that an inferior coupler applied to a car with a good draft rigging, having ample spring capacity, will give as good results and even better than a much stronger coupler applied with a poor draft rigging having insufficient spring capacity, making it very rigid in withstanding shocks."

## The Crosstie Situation.

For a number of years we have held that there was no place for metal crossties in the United States, and we have been skeptical as to the large increase of their use for a long time to come on the Continent of Europe. The argument briefly stated was that the wooden crosstie is convenient in renewals and repairs, has a desirable elasticity, is cheaper than the metal tie, taking into account all the elements of interest and maintenance. We have reasoned that before the metal crosstie could be profitably used the railroad companies would exhaust the capabilities of preservative processes and the protection of the wearing surfaces of the wooden ties by tie plates. We have thought, therefore, that the use of metal ties would, for many years to come, be confined to countries where timber is dearer than in the United States and on the Continent of Europe, or where it is destroyed by white ants. Indeed, it has not seemed impossible that the means of preservation suggested above might prolong the use of wooden crossties in this country until we should develop a civilized system of forest cultivation and protection and so produce a perpetual supply.

Up to this time events appear to justify such opinions. To-day metal crossties are not at all used in the United States, leaving out some very limited and experimental cases. If we are not mistaken, their use on the Continent of Europe is diminished relatively to wooden crossties, rather than increasing.

To-day, however, we are not quite so certain as we were a year or two ago as to the continuance of these conditions. Engineers responsible for track are beginning to feel anxious about the future supply of timber for crossties. Prices are rising, and hardwood ties at any rate, are becoming more difficult to get. In our issue of Nov. 10, page 771, we quoted Mr. Octave Chanute as saying that one year ago white oak ties were quoted in Chicago at 45 cents and cedar ties at 36 cents, while the prices now are, white oak, 60 to 65, and cedar 50 cents, with talk of further advance. On Eastern railroads much the same condition is found. Oak ties are from 8 to 10 cents dearer than they were a year ago, pine ties 8 cents dearer and cedar ties from 13 to 20 cents dearer.

It is still doubtful, however, if the apprehensions of the engineers are yet justified. From 1890 to 1898 prices fell instead of advancing, and the high prices quoted now are probably merely one instance of

the advance in prices of all sorts of material. It is likely that within two years they will recede; yet we know that the profligate destruction of our forests continues unchecked, and it is not probable that the efforts of the Federal and State Bureaus to control this matter will produce valuable results until long after wooden crossties have become much scarcer and dearer than they are now, and it is wise to consider carefully what may be done to prolong the life of wooden ties and to find substitutes for them.

Our readers have been kept informed of the extensive work of the Southern Pacific Company in the way of preserving crossties, and of the less important work of some of the railroad companies in the middle West, and of the valuable work which Mr. Chanute is doing in developing tie preservation as a commercial business. They must know also by this time most of the developed possibilities of the use of the tie plate, and therefore we need do no more now than to call attention again to these devices for prolonging the life of timber ties. It seems probable that ties will be treated much more within the next decade than ever in the past, and the railroads and the nation will owe much to Mr. Octave Chanute and Mr. W. G. Curtis as pioneers in the actual commercial preservation of crossties.

Meantime, it is well enough to be thinking about the possible development of substitutes for wooden ties. It seems fairly obvious that cast iron cannot be used for this purpose. At any rate, no satisfactory, or even promising, cast iron tie has ever been devised. If it is made in the form of a continuous beam, reaching across the track, it must be unreasonably heavy or it will be liable to break whenever it gets bound at the center. We shall be told that no good track man will allow his track to become center bound, but he cannot always help it. The pot sleeper, which has been extensively used in Egypt and India, is a poor contrivance. It consists of two disks, like tea saucers turned upside down, connected by a wrought iron spanner. Any track man will see at once the difficulty of keeping it in line and surface.

In our own country steel ties have not yet been received with much favor, even apart from their high first cost. To keep the price within possible limits the metal must be thin; but then its life will probably be seriously curtailed by corrosion, especially about the places where the attachments are made. It is not impossible, nor should we say improbable, that a satisfactory pressed or rolled steel tie will be devised and put on the market before many years; although obviously development in that direction will be arrested so long as the prices of steel are as high as they are now. But it is fairly safe to say that no steel tie satisfactory to American engineers has yet been brought out.

If then, cast iron and steel both have these defects or limitations as materials for crossties, why should we not use malleable iron? We do not remember ever to have seen a design of a malleable iron tie, although it is likely that such a design has been made. It seems a plausible notion at least that a malleable tie could be made light enough to be turned out at reasonable cost, strong enough not to be subject to frequent breakage at the middle, massive enough to allow for rusting out, which would be slower than in the case of steel, and conveniently devised for connecting and adjusting the attachments for the rails. We particularly call the attention of the malleable iron men to this field for their product. Probably they are not seeking new fields just now, but the time will come when they will be anxious for them, and meantime they might profitably be getting their designs for crossties ready.

From time to time people have suggested the use of various other materials, as clay, glass, paper and hard fiber. We may perhaps reasonably leave the consideration of these materials until somebody brings forward plausible designs for their use.

Mr. Stuyvesant Fish, President of the Illinois Central, in the address which he gave before the Industrial Commission at Washington the other day, said that if the workmen in his company's shops had been willing to accept a reduction in wages during the dull times, the company could have kept more of them at work. The cost of living having been reduced, wages in contract shops were cut down, so that the company found it more profitable to buy its cars and engines than to build them in its own shops. Since the revival of good times, car makers have restored their wages and consequently have advanced their prices, so that now the Illinois Central is again building its own cars. It has built 500 in the last three months and expects to make 1,250 more before next April. When work fell off in the railroad company's shops at the beginning of the dull times, the men preferred a re-



duction in the force and in the working hours rather than a reduction of wages, and the company acceded to their wishes; but with the result, as stated, that the desired work was done in other places.

#### Inspection and Maintenance of Air Brakes.

At the November meeting of the Central Railway Club, Messrs. J. R. Petrie and L. I. Knapp presented a report on inspection and maintenance of air brake equipment at terminals and on cars in transit to expedite the movement of traffic. Extracts follow:

Railroads and private companies that have already begun to equip freight cars with air brakes, to meet the requirements of Interstate laws, must awaken to the realization of the fact that not only have they a fast increasing equipment to maintain, but that they have, in many cases, a large equipment already in service needing repairs of a nature to involve considerable expense to reclaim it from the condition of neglect into which it has been allowed to drift. A thorough and systematic regime must be inaugurated which will require considerable care to pipe-work becoming loose at joints due, in a large measure, to defective clamping and a renewal of a great many of the perishable parts, such as piston leathers, gaskets, etc., which, although defective, still allow the brake to work, yet are insufficient to bring it to that state of efficiency that should be required. Competent men must be employed and not only must they understand the principle of the brake, but must be so far educated in this line that they may, by watching the action of the brake, be able to locate defects.

At terminals, where trains are stored and made up, is the place where air brakes should be thoroughly tested, inspected and repaired. The air pressure to test the brakes is preferably taken from an independent plant, arranged so that all parts of such yards can be reached. Efficiency absolutely requires before accepting a car from a connection to make this test and have any repairs made.

When this is done and care are grouped into a train with road engine attached, then it is necessary to make a further test for the reason that in grouping a train cars stand in a different position than when in yard, and although gaskets in coupling are all right at the time of yard inspection, being placed differently, often leak.

Duplicates of all movable parts should be kept on hand so that defective parts could be renewed with the least detention. This last inspection can be done by oilers and train men, and if the air brake inspection in yard is thorough there is generally little to be done. This after inspection also has a tendency to make the yard work just what it should be.

Place all cars equipped with air brake next to engine and cut them all in service, let there be 25 to 65. It is not expected that many air brake defects shall be remedied by trainmen, en route, but they should stop leaks when possible, make necessary brake tests, and invariably report existing defects which they cannot remedy.

On a number of railroads it has been the custom for years to use some form of conductor's air brake defect card, and in every instance where intelligently used it has resulted in much good to the brakes.

If a car is discovered with defects in the air brake apparatus and of such nature that repairs cannot be immediately made without setting car on repair track, or without unnecessarily delaying freight, and it is found, after testing, that by cutting out the air on the car the air will pass through the train pipe to cars in rear, then the cards should be applied to car with side out reading "Air Brake Cut Out" by the conductor or inspector discovering the defect. This will indicate that the air brake apparatus on the car is inoperative, but car can be placed between other air brake cars in train without affecting the proper working of the air brakes on cars behind it.

If the defects discovered are in such location that the air will not pass through the train pipe to the cars in rear, the cards should be applied with the side out reading "Defective Air Brake."

The cards, together with the stub, must be properly filled out, giving all information called for, and signed by the train conductor or inspector who applies them. The defects necessitating the application of the Defective Air Brake cards must be shown on the cards by drawing lines with a pencil through the name of the part in which the defect is located. In filling out the stub, the figures representing the defective part should be used to designate such part.

All defects discovered in the brake apparatus should be marked on card, although but one may be necessary for the application of card.

The blank space numbered 13 on each side of card is intended to be used for any defective part of air brake apparatus affecting the proper working of the air brakes and not represented by any of the detail parts shown. The location of the defect should be written in this space and also written on stub. The stubs must be detached and forwarded daily by conductors to their Division Superintendent, and by inspectors to their Division Master Car Builder or Division Superintendent of Motive Power.

Cards to be applied in center of side doors, near the bottom, on cars having side doors, and on coal

and gondola cars, on sides in center of car; and cars having no sides, on side sills in center. Cards to be applied to both sides of car and securely fastened with four tacks.

In switching cars and in making up trains in yards, all cars having defects reading "Defective Air Brake" should be switched in the rear of the other air brake cars. Cars bearing cards reading "Air Brake Cut Out" need not be switched back of other air brake cars.

#### TECHNICAL.

##### Manufacturing and Business.

We are advised by the Harrison Dust Guard Co., of Toledo, O., that it is delivering large orders to the Chicago, Rock Island & Pacific, the Illinois Central, the Southern, the T. N. Motley Co., Michigan Central, Lake Shore & Michigan Southern, St. Louis & Kansas City, Chicago & West Michigan, Seaboard Air Line, Wheeling & Lake Erie, American Car & Foundry Co., and to the Pressed Steel Car Co. for the new steel cars for the New York Central & Hudson River.

The Falls Hollow Staybolt Co. of Cuyahoga Falls, O., has received an order from the Baldwin Locomotive Works for 3,000 ft. of safety hollow staybolt iron  $1\frac{1}{8}$  in. outside diameter, with  $\frac{5}{16}$  in. hole for use in the locomotives now building for the Atchison, Topeka & Santa Fe. The staybolt company has also received a large order for safety hollow steel bolts from the Neafie & Levy Ship & Engine Building Co.

The New York & Pennsylvania, now being built, of which G. R. Brown is Vice-President and General Manager, at Canisteo, N. Y., will require about nine miles of rails.

Mr. W. O. Thompson, General Foreman of the Elkhart shops of the Lake Shore & Michigan Southern, has resigned to become the Eastern representative of the Hancock Inspirator Company. For a number of years Mr. Thompson has been well known as the Secretary of the Traveling Engineers' Association.

D. B. Clark, until recently Manager of the car shops of the H. C. Frick Coke Co., at Everson, Pa., has become Manager of the Schoen Pressed Steel Car Works at Elwood City. J. F. Keighley of Philadelphia succeeds Mr. Clark as Manager at Everson.

Milton Player has been appointed Superintendent of the Electric Axle Light & Power Co. in place of G. K. Wheeler. H. K. Brooks has been appointed Mechanical Engineer. Both Mr. Player and Mr. Brooks will have their headquarters in Topeka, Kan.

The Tanite Company, of Stroudsburg, Pa., reports a large export business. It has in hand an order for emery wheels for Russia and another for New Zealand, and is also filling an order for an American firm for one of its two-wheeled No. 5 grinders, weighing over a ton, such as was originally designed for, and supplied to, the French Government. The company has under consideration a Russian order for surfacing machines or guide bar grinders like those supplied a year or so ago through Manning, Maxwell & Moore for the American locomotive plant for Russia, and through R. Cameron & Co., of New York, to the government railroads of New Zealand.

##### Iron and Steel.

The United States Iron Company, recently incorporated in New Jersey with \$1,000,000 capital, has bought the West Point Mining Co. of Alabama. The property is said to comprise about 6,000 acres of brown hematite ore lands.

Last Thursday the price of steel bars was advanced in Pittsburg from \$2.50 per 100 lbs. to \$2.75 for prompt delivery. This is an increase of \$5 per ton. Even at these figures it is almost impossible to obtain steel bars for use any time prior to the first of the coming year. For delivery in the second quarter of 1900 \$2.30 per 100 lbs. is asked.

Joseph Wharton will build a new blast furnace at Port Oram, N. J., where he now owns and operates the Wharton Furnace. The size of the new furnace is to be 100 x 22 ft. It will have a daily capacity of about 400 tons of foundry and forge iron. It is expected that the furnace will be ready for blast in about one year. Mr. Wharton has also leased the Pequest Furnace, at Warren, N. J., for five years and has put it in good order. After an idleness of several years it was blown in Nov. 2.

The Irondale plant of the South Chicago Furnace Co. is being extended, a new engine house, engines and pumps being added, to cost \$200,000. Foundations for a new building to be 30 ft. x 50 ft. and 70 ft. high are being put in and it is said that next spring two large blast furnaces will be added and other improvements made, to cost \$700,000 more.

The National Tube Co. has advanced the wages of the 1,500 or more employees of the Middletown (Pa.) plant.

The Union Steel Co. of Pittsburgh was chartered Nov. 13, with a capital of \$1,000,000. The directors are W. H. Donner, A. W. Mellon, R. B. Mellon, W. S. Mitchell, C. F. Farren, all of Pittsburgh.

Work has been begun on the blast furnace for the Sharon Steel Co. at Sharon, O., which is estimated to

cost about \$500,000. It will have a daily output of 600 tons.

The Republic Iron & Steel Co. has plans ready for one iron furnace, 18 x 85 ft., to have a total daily capacity of 250 tons. A similar furnace is contemplated for the near future.

The Iron City Mining Co., recently organized, is building an ore washer in addition to one already in use, at Birmingham, Ala. J. W. McQueen is Secretary.

The General Tunnel Engineering Co. was incorporated Nov. 11 in West Virginia by David J. Newland, A. P. Knight, Harry E. Knight, O. Knight and J. C. Snyder, all of 20 Broad St., New York. The authorized capital is \$250,000. The company proposes to build and repair bridges, piers, wharves, shafts, water-works, tunnels, railroads, etc.

The property of the Harrisburg Car Mfg. Co. was sold at receivers' sale Nov. 10. The Pennsylvania RR. bought five acres of the land. The main buildings were sold to Spencer C. Gilbert at \$2,500, subject to a \$95,000 mortgage.

The Park Steel Co. has declared a quarterly dividend of 1½ per cent. on the preferred stock, payable Dec. 1.

The property of the Lochiel Furnace Co., Harrisburg, Pa., leased to the Pennsylvania Steel Co., was sold at auction to the Pennsylvania Steel Co. last week for \$112,500. The Lochiel Furnace was built in 1872 and was rebuilt in 1886.

The Knoxville Iron Co. is contemplating extensions to the plant at Harriman to double its present capacity. New machinery will be wanted.

The Wabash Bridge & Iron Co., which was intended to be included in the consolidation of bridge builders to be known as the American Bridge Co., inform us that they have decided not to join this consolidation. Reports during the past week state that other companies have taken this same action.

Fire in the old Ferry Rolling Mills of the Diamond State Steel Co., Wilmington, Del., Nov. 8, affected one of the small mills and some spike and large rivet machines. This mill was 106 ft. in width and 661 ft. long. The fire started in the carpenter shop. The company informs us that the mills producing bar iron, splice bars, etc., machine and track bolt works, small rivet and nut shop, horseshoe works, forge department, foundry and galvanizing works are uninjured and are running to their capacity.

The Philadelphia Steel Co. has been organized under the laws of New Jersey, with a proposed capital stock of \$200,000, to make open hearth steel. Aaron J. Sanson, Jr., is President; S. M. Shelly, Vice-President, and Edward M. Middleton & Co., the Treasurer. The general office is in the Franklin Bldg., Philadelphia.

Edward Shearson, formerly Auditor of the Federal Steel Co., has been appointed Assistant to the President of that company.

The Republic Iron & Steel Company have almost constantly advertisements in the daily newspapers for men, and find it difficult to get sufficient labor to operate their mills.

The price of coke for next year is much higher than it was last year. Contracts for furnace coke for all of next year have been made at \$3 a ton, which is fully an advance of \$1.50 a ton over this and last year. Foundry coke is scarce and is selling at very high prices.

Beginning Jan. 1, the wages of the rail workers in the South Chicago Mills of the Illinois Steel Co. will be advanced.

The Tidewater Steel Co., recently organized to operate the old Wellman plant at Chester, Pa., has secured W. D. Crawford as General Manager. Mr. Crawford was formerly with the Schoenberger Steel Co.

The Ohio Steel Mfg. Co. has been organized to make open hearth steel castings. The plant will be built at Canton, O., and will contain one 15-ton open hearth furnace. The main building will be 200 x 95 ft. The Wrought Iron Bridge Co. has the contract for the steel for this building.

The Iron Age's monthly blast furnace statistics show that the active capacity of the coke and anthracite furnaces has increased by 8,981 tons weekly, to the total of 281,409 tons weekly.

The Carnegie Steel Co., Ltd., are introducing labor saving devices at the Edgar Thompson blast furnaces at Bessemer, by which the ore will be charged into the furnace automatically.

##### Interlocking.

Interlocking signals have been put in at the crossing of the Western Maryland and the Cumberland Valley roads at Hagerstown, Md. The machine has 37 levers.

##### Performance of Compressed Air Motors at Chicago.

The two Hardie compressed air motor cars which are used after midnight on the North Clark Street cable line, Chicago, have given very satisfactory service. The cars were put on May 30 and are run after the cable plant is shut down—that is, between 12:45 and 5:45 a. m. on week days and between 12:45 and 7:45 a. m. on Sundays. Up to October 1 these cars made 6,487 miles and cash fares were collected



from 71,155 passengers, which is an average of 11 passengers per car mile, or 77 passengers for each round trip of seven miles. The cars were in service 598 hours and the compressors in the North Clark Street power house were run 443 hours. On the first trip each night the run is made with the air stored on the car since the previous trip, and it is not unusual for one and sometimes two trailers to be used during the first part of the night. It is reported that the compressed air motor service on Chicago roads is soon to be extended.

#### Rapid Transit in New York.

The Appellate Division of the Supreme Court of New York has granted the application of the Rapid Transit Commissioners for permission to reduce the bond required from the contractor from \$14,000,000 to \$5,000,000. Chief Justice Van Brunt dissented, but Justices Barrett, Patterson and Ingraham united in the opinion that the bond should be reduced. Now we shall soon see whether or not responsible bidders will be found. The reduction of the amount of the bond is a very important step toward this end. The advertisements will probably be published before these words are in print, and bids will be opened in 60 days unless the time is extended, as may well happen.

#### Test of a Roebling Arch.

A test of the Roebling arch used in fireproof construction was recently made at Chicago. A uniformly distributed load of 22,659 lbs. was put on a section of floor 3 ft. 10 in. long, the span being 5 ft. 10 in. between 12-in. I-beams, and the crown of the arch was 3 in. high. The loading was 1,239 lbs. per sq. ft. and the net deflection at the center was 9/32 in. The concrete used in the arch tested had been in place 27 days, and was made of one part of Atlas Portland cement, 3½ parts of coarse sand and 6½ parts of cinders. This concrete was applied without tamping on a wire cloth centering, consisting of No. 21 close warp wire with ¾ in. steel rods interwoven at intervals of 9 in. The rods were bent to the proper curvature and rested on the lower flanges of the I-beams. The load was left in place for six days, but no change could be detected in the deflection.

#### Another Tie-Treating Plant.

Rowe & Rowe, Consulting Engineers, Chicago, are preparing plans for a large stationary tie-treating plant for the Great Northern, to be built in northern Minnesota, but the exact location has not yet been decided. Pine, spruce and other second-class cross ties will be treated. Three retorts will be used of such size as to give a daily capacity of about 3,000 ties. As in the new plant of the Burlington & Missouri River Railroad in Nebraska at Edgemont, S. D. (see p. 585), the design will be such as to permit of the use of either the zinc chloride or the zinc tannin process. The Edgemont plant will be finished about the first of December.

#### The Back-Up Hose Patent.

Judge Townsend, in the United States Circuit Court for Connecticut, has decided, in the suit against the New York, New Haven & Hartford, that the McKenna patent on the "back-up hose" is void, the device having been in use before the patent was applied for. This device is the well-known arrangement for enabling the rear brakeman, when a passenger train is moving backward, to apply the air brakes and thus control the speed, and, when necessary, to stop in obedience to signal. A short piece of hose is attached to the connecting coupling at the end of the car and is hung to the hand rail so that the brakeman can conveniently manipulate the valve, which is attached to the upper end of the hose. In large terminals like those at St. Louis and Boston, with car storage yards a considerable distance from the station, this arrangement has become a necessity.

#### Creeese's Track Mover.

There has lately been in use at Conway, Pa., on the Pittsburgh, Fort Wayne & Chicago, a device for moving track by locomotive power without loosening the ballast, which is said to have worked great economy in time and labor. The apparatus was devised by Mr. D. C. Creeese, of New Brighton, Pa., a carpenter in the employ of the company, and an officer of the road informs us that it works satisfactorily. At a place where a large fill was being made, in connection with the new work at Conway, a length of track 1,000 ft. long was moved sidewise 12 in. without taking out the ballast, and the whole job was done in five minutes. It is said that track has been moved three feet at one throw. The essential feature of the track thrower is a very stout pole 30 ft. long, extending backward from a platform car and pressing sidewise against the web of one of the rails. The pole extends from the left-hand corner of the car to the inside of the right-hand rail. It is braced, about midway, by a lighter pole, attached to the right-hand corner of the car; and it is also held in position by an iron rod which connects the right-hand corner of the car with the extreme end of the pole, and which is adjustable. At the outer end of the pole is a pulley 14 in. in diameter, through which the pressure is exerted. Before starting, a short section of the track is moved to the right with bars, in the usual manner, the desired distance; after this is done the pole is adjusted so

as to press against the rail in its new position, and then, the car being pulled forward by a locomotive, the track is crowded over to the new position as the car proceeds. The car is heavily loaded with iron to give it stability, and there is at its rear end a pulley, fixed at the top of a post about 9 ft. high, over which runs a rope, attached to a windlass, by which the outer end of the pole can be lifted clear of the track. We have described the process of moving track to the right; but the pole and braces are changeable so that it is not necessary to turn the car around to move track to the left. The inventor says that his track mover will do in 30 minutes a job which if done with bars in the usual way would require 100 men 10 hours.

#### Litigation Over Pneumatic Tool Patents.

The Chicago Pneumatic Tool Company last week gained its suit against the American Pneumatic Tool Company of New York. Between three and four years ago the American Company brought suit at New Haven, Conn., against a concern using one of the Boyer tools, and got a preliminary injunction. The Boyer people took appeal from the preliminary injunction and the order was reversed by the Court of Appeals at New York City. The suit was argued before Judge Townsend, in the United States Court at New Haven, last June, and last week Judge Townsend handed down an opinion declaring that the Boyer tools did not infringe the American Company's patent. The Boyer people on Saturday last began suit in the United States Court at Chicago against the Standard Pneumatic Tool Company, manufacturer of the "Little Giant" pneumatic tools. On the other hand, the Standard Company has served notice of infringement on Mr. Joseph Boyer and asked for an accounting.

#### McElroy-Grunow Third-Rail System.

A trial of the McElroy-Grunow third-rail electric railroad system was made at New Britain, Conn., Thursday afternoon, Nov. 9. About 300 ft. of track and an electric car of the New York, New Haven & Hartford R. R. were used, the current being supplied by the power house of the road at Berlin. The system consists of two rails laid close together in the center of the track, one carrying the main current and the other acting as an energizing rail, with electro-magnet circuit closers at intervals along the outside of the track. These circuit closers are connected with an underground feed wire and charge the third rail that supplies power to the car or cars. This rail is divided in sections depending on the length of the electrified track that can be safely exposed. If necessary, only the rail directly under the car, or cars, will be charged. At the trial an ammeter on the car read from 150 up to 1,000 amperes, the average voltage being 550. The horse power developed was therefore 100 to 700. The McElroy-Grunow system is the invention of Mr. William Grunow, Jr., E. E. of Bridgeport, Conn., and Joseph A. McElroy, M. E., of New York City, a member of the firm of Macartney, McElroy Co., Ltd., of New York, London and Glasgow. The officers of the McElroy-Grunow Electric Railway System of Bridgeport, Conn., are: President, Alfred B. Beers; Vice-President and General Manager, Wm. Grunow, Jr.; and Secretary and Treasurer, James H. McElroy.

#### New Air Compressor Company.

Announcement is made of the organization of the New York Air Compressor Company under the laws of the State of New Jersey. The capital stock of the company is \$100,000, and a foundry and machine shop plant has been purchased on the line of the New York & Greenwood Lake Railroad at Arlington, N. J. Contracts have already been let for a full modern equipment of tools. It is intended to manufacture a complete line of air compressing machinery at the new plant. The officers of the company are: J. W. Duntley, President; Alexander MacKay, Vice President; W. P. Pressinger, Secretary and Treasurer. The directors are: J. W. Duntley, Alexander MacKay, W. P. Pressinger, William P. Albright, W. O. Duntley, Thomas Aldcorn and Austin E. Pressinger. The New York offices of the company are at 120 Liberty St.

#### THE SCRAP HEAP.

##### Notes.

The train and station men of the Baltimore & Ohio now wear the gold "service stripes" lately authorized by the General Manager to indicate the length of time that each individual has been in the employ of the road. Mr. W. H. Green, passenger conductor between Baltimore and Cumberland, wears on his right coat sleeve 10 gold stripes, indicating that he has worked for the road 50 years. Mr. Green is 72 years old. There are 10 other conductors wearing seven or more stripes each, and the average term of service of 191 conductors is said to be 20 years.

The Delaware, Lackawanna & Western is now using a patent rebate check in which the part given to the passenger shows the amount of money collected, but does not show the names of the stations between which he rides. The stub retained by the conductor has blanks in which the station from and station to are to be written with a pen or pencil, and

it also shows by punch marks the amount collected. The sample ticket before us shows, on the part to be given to the passenger, a blank in which the conductor's name is to be written or stamped.

#### Electric Traction on Canals.

Mr. A. B. Donaldson, Secretary and Treasurer of the Erie Canal Electric Traction Company, has lately said to a reporter that it was safe to assume that at least 200 motors would be operating upon the Erie Canal next season, which equipment would be sufficient to handle at least a thousand canal boats. He said that he had just returned from Chicago, where he had inspected the new trackless trolley motor which bids fair to be an efficient means for operating canal boats.

#### The General Superintendent of Motive Power.

The establishment of an office with this title on the Pennsylvania Lines West of Pittsburgh was noted in the Railroad Gazette of November 3. It covers both the Northwest and Southwest system. The duties of the new office are the subject of a circular which has just been issued by the General Manager which says:

"The General Superintendent of Motive Power shall, under the direction of the General Manager, have the direct supervision and control of the motive power department in so far as may be necessary to insure the efficiency of the equipment, adherence to the standards and systems of the company, and the most economical operation of the shops. He shall furnish the Superintendents of Motive Power with copies of all standard drawings and shall give such instructions as may be required to insure uniformity in the construction and repair of all the company's rolling equipment and machinery. He shall have charge of all tests and experiments and when made on the lines the instructions therefor shall be issued through the General Superintendent. In the performance of these general duties he shall visit the various shops from time to time and shall make such recommendations to the General Manager or direct to the Superintendent of Motive Power as he may deem necessary for the efficiency and economy of the service. He shall perform such other duties as may be assigned to him from time to time by the General Manager."

#### Weight of Mails at Chicago.

During the 35 days between Oct. 3 and Nov. 6, when the mail was weighed, the paid mail matter originating in Chicago amounted to 3,882 tons, and, counting free mail pouches and sacks, the total weight was 4,976 tons. This is an increase of over 33 1/3 per cent. since 1895. The receipts for stamps and postal cards for the same period were \$663,948.

#### Surveyors Drowned.

Press dispatches say that Mr. Smith and Mr. Brant, President and Vice-President, respectively, of the Yuma & Gulf of California Railroad Co., have returned to Yuma after an attempt to find a surveying party sent out by that railroad which has evidently been lost in the Gulf. The party consisted of Messrs. Stoker, Chief Engineer Unhur, Assistant Engineer Martinez and Tyson. They went out in a small boat with the intention of moving camp 10 miles down the Gulf and were carried out to sea by a storm and have not been heard from since.

#### Close of New York Canals.

The canals of the State will close on Friday, December 1, except the Black River Canal, which will close on November 24, unless the weather is so severe as to cause a suspension of navigation before the date set.

#### Isthmian Canals.

The United States gunboat Scorpion has taken out a party to survey the suggested New Columbia canal route between Caledonia Bay and the Gulf of San Miguel, for a sea level waterway with 26 miles of actual canal. This route is said to traverse the most deadly malarial district on the face of the earth.

#### American Air Power Co.

The annual meeting of the stockholders of the American Air Power Co. was held Nov. 13, in New York, when A. A. McLeod, President, tendered his resignation, to continue, however, as a Director. He will be succeeded by H. H. Vreeland, of the Metropolitan St. Ry. Co. Directors were elected as follows: Wm. L. Elkins, Thomas Dolan, H. H. Vreeland, succeeding J. H. Hoadley, A. A. McLeod, and Gen. G. E. P. Howard, resigned.

#### LOCOMOTIVE BUILDING.

We are informed that the Illinois Central is about ordering 40 locomotives.

It is reported that the Erie & Wyoming Valley will, in a few days, order some locomotives.

We are informed that the Chicago & Eastern Illinois is not in the market for locomotives, as reported last week.

The California Northwestern has placed an order with the Baldwin Locomotive Works for one 10-wheel passenger engine.

The Hocking Valley has asked bids from four builders on six 8-wheel passenger locomotives. We noted last week that this road would order locomotives.

We are reliably informed that the locomotive order for the Minneapolis, St. Paul & Sault Ste. Marie has been indefinitely postponed and will probably not be let until after Jan. 1.

On Sept. 29 we noted that the Baldwin Locomotive Works was building 10 locomotives for the Grand Trunk. We are now officially informed that these locomotives are for delivery this month, the first one having been received. They will be run in international service between Montreal and Portland. They are Vauclain compound consolidation locomotives with cylinders 15½ and 26 in. in diameter by 28 in. stroke, with drivers 56 in. in diameter and a total weight of 162,000 lbs., of which 145,000 lbs. is on the drivers. The boilers are of the straight top type with working steam pressure of 200 lbs. per sq. in. There are 260 iron tubes, 2 in. in outside diameter and 14 ft. long. The fireboxes are of steel 114½ in. long by 41½ in. wide. The tank capacity for water is 4,500 gals. and for coal 10 tons.

Last week, in describing the new engines ordered by the Great Northern, we gave only the specifications for the 12-wheel and switching engines ordered from the Rogers Locomotive Co. The 10 12-wheelers to be built by the Brooks Locomotive Works will weigh 182,000 lbs., with 150,000 lbs. on the driving



wheels, and have Belpaire boilers with 396 charcoal iron tubes 2 in. in diam. and 13 ft. 10 1/4 in. long, and steel fireboxes 123 in. long and 41 1/4 in. wide. The two six-wheel switchers will weigh 137,000 lbs. and have 19 in. x 28 in. cylinders; Belpaire boilers, with 284 charcoal iron tubes 2 in. in diam. and 11 ft. 1 1/4 in. long, and a working steam pressure of 200 lbs.; and fireboxes, of steel, 114 in. long and 42 in. wide. All of the locomotives will have B. L. W. piston valves, New York air brakes, Nathan injectors, Jerome piston rod and B. L. W. Special valve rod packings, three Crosby safety valves, Leach sanding devices, Nathan lubricators and French springs.

#### CAR BUILDING.

The Allison Mfg. Co. is building 50 cars for the Parral & Durango.

The Pennsylvania has ordered 500 steel cars from the Pressed Steel Car Co.

The Barney & Smith Car Co. is building 100 cars for the Pittsburgh, Shawmut & Northern.

It is reported that the Allegheny Valley will shortly order 300 freight and six passenger cars.

It is reported, but not officially, that Swift & Co. is considering ordering some more refrigerator cars.

It is reported that the Erie & Wyoming Valley will, in a few days, place an order for a number of cars.

We are informed, but not officially, that the Northern Pacific will build 300 freight cars at its Tacoma, Wash., shops.

We are informed that the Duluth, Missabe & Northern has ordered 500 ore cars from Pullman's Palace Car Co.

We are officially informed that the Illinois Central is not in the market for 1,000 box cars, as was reported by a contemporary.

The Philadelphia & Reading has ordered 42 cars for passenger service, the order being divided between Harlan & Hollingsworth and the Wason Car Mfg. Co.

The Philadelphia & Reading has placed an order with the Pressed Steel Car Co. for 1,000 wooden coal cars with steel underframes, to be built at the McKees Rocks plant.

It is stated that officials of the New York, New Haven & Hartford are conferring with Pullman's Palace Car Co. about placing a contract for 10 cars for passenger service.

The Chicago & Alton has let 300 stock cars to the Mt. Vernon Car Mfg. Co., and we understand that the road is about to place further car orders, including 300 more stock cars.

It is reported that the Brainerd & Northern Minnesota is in the market for about 50 more flat cars. In our issue of Oct. 27 we gave details of an order for 25 such cars for that road.

We are informed that the Pittsburgh, Bessemer & Lake Erie has ordered 400 steel cars of 80,000 lbs. capacity and 400 steel cars of 100,000 lbs. capacity from the Pressed Steel Car Co.

We are reliably informed that the box car order for the Minneapolis, St. Paul & Sault Ste. Marie has been indefinitely postponed and that it probably will not be let until after Jan. 1.

On Nov. 3 we noted an order for passenger cars for the Northern Pacific. We now understand that this order was for 10 baggage and express cars, 10 sleeping cars and five buffet cars.

On Oct. 6 we noted that the Great Northern of Canada would be in the market for freight and passenger cars. We now understand that bids for this equipment will be received Nov. 20.

We are officially informed that the Hocking Valley expects to order from the Pullman's Palace Car Co. seven coaches and three baggage and express cars, but that the designs are not yet completed.

The New York Central & Hudson River has ordered 50 passenger cars from the Harlan & Hollingsworth Co., for delivery next spring. They will have steel axles, National hollow brake beams, Westinghouse brakes, Magnus metal brasses, Gould couplers, Forsyth curtain fixtures, Pantasote curtain material, McCord journal boxes, Pintsch gas light, Gould platforms, Scarritt seats, French springs, N. Y. C. standard trucks and Paige wheels.

The 500 40-ton flat cars, now being built at the Burnside shops of the Illinois Central, as noted last week, will be 40 ft. long, 8 ft. 6 in. wide, 4 ft. 1 1/4 in. high, and will weigh about 26,000 lbs. The equipment will include Westinghouse air brakes, Fox trucks, Monarch brake beams, Universal bearings and wedges, Chicago steel couplers, Thornburgh draft rigging, Fletcher journal boxes and lids, French drawbar springs, Scott bolster springs, bass wood dust guards and steel axles.

The 1,000 box cars ordered by the Southern Pacific from the Barney & Smith Car Co. and referred to Oct. 27, will be of 60,000 lbs. capacity, weigh about 28,000 lbs. and measure (inside) 36 ft. long, 8 ft. 2 1/4 in. wide and 6 ft. 9 1/4 in. high. The specifications call for wrought iron body bolsters, S. P. metal brake beams, cast iron brake shoes, Westinghouse air brakes, M. C. B. couplers, Wagner doors with Dayton fastenings, Canda draft rigging, M. C. B. journal boxes with Morris lids, Winslow roofs, French springs and S. P. standard trucks.

As stated in our last issue, the Philadelphia & Reading is receiving bids on a large number of box cars and high side gondola cars with drop bottoms. The specifications for the box cars call for cars of 60,000 lbs. capacity, to weigh 29,000 lbs., measure 34 ft. long, 8 ft. 6 in. wide and 8 ft. high, inside, and to be equipped with steel or hammered iron axles, Fox bolsters, Kewanee or Sterlingworth brake beams, cast iron brake shoes, Westinghouse air brakes, Gould yoke couplers, Dunham doors with Security fastenings, Gould malleable draft beams, Soule dust guards, McCord journal boxes and lids, Chicago-Cleveland roofs, helical springs, Fox trucks and P. & R. standard brasses and paint. The drop bottom gondola cars will be of 70,000 lbs. capacity and measure 34 ft. long, 8 ft. 4 1/4 in. wide and 7 ft. 6 1/2 in. high. The specifications call for the same axles, bolsters, brake beams, brakes, couplers, dust

guards, springs and trucks as for the box cars and Butler draft rigging and M. C. B. journal boxes with Morris lids.

The J. B. Brill Co. has a contract for 120 trolley cars and trucks for Lisbon, Portugal.

The Union Traction Co., of Chicago, will, it is said, build about 100 cars at its own shops.

It is reported that the United Railways of St. Louis are in the market for 200 cars.

#### BRIDGE BUILDING.

ABERDEEN, WASH.—The County Auditor will receive bids for a bridge across the Chehalis River at or near Block House Ferry.

AMADOR CITY, CAL.—The citizens of Amador are agitating the subject of several new bridges. The bridge over Sutter Creek, in town of Sutter Creek, is said to be too narrow for the traffic which goes over it. At Rancheria Creek, between Amador City and Drytown, a bridge is needed.

ARCHBALD, PA.—The Borough Council has been petitioned for a bridge across the Allegheny River.

ATLANTA, GA.—The Phoenix Bridge Co. has the contract for the large viaduct on Whitehall St. over the Southern Ry. The Atlanta Construction Co. will build the foundations.

ATTLEBORO, MASS.—The Old Colony line of the N. Y., N. H. & H. is reported to have been ordered to build a bridge over the tracks at Broadway.

BELLEFONTAINE, O.—Logan County will sell on Nov. 28, \$5,000 of pike bonds, and \$4,500 of bridge bonds.

BOONE, IA.—The Chicago & Northwestern will build a double-track trestle bridge across the Des Moines River, five miles west of Boone. To avoid the present heavy grades the bridge is to be built about 185 ft. high and its extreme length will be 2,635 ft.

BOSTON, MASS.—An ordinance has been passed by the City Assembly requiring the City Engineer to prepare plans for widening the Congress St. bridge to 80 ft. with a draw opening of at least 50 ft., and furnish the City Council an estimate of the cost of same.

CATHLAMET, WASH.—Sealed proposals, with plans, etc., will be received by the Board of County Commissioners of Wahkiakum County until Nov. 29, for a draw bridge across Deep River. Jesse Baker, Auditor and ex-officio Clerk of Board of County Commissioners of Wahkiakum County.

CHARLOTTETOWN, P. E. I.—Richard Smith, Secretary, Provincial Public Works Department, wants tenders for rebuilding the South River bridge, Murray Harbor South.

CHICAGO, ILL.—Bridge Engineer Wilmann has condemned the west approach to the Randolph St. bridge which crosses the Panhandle and St. Paul railroads.

CINCINNATI, O.—The County Commissioners have rescinded their action in approving the contract for the construction of a new bridge on the Paddock road across Ross Run.

CHILLICOTHE, MO.—Reports state that bids are wanted Nov. 21 for a bridge over the East Fork of Grand River at Third St. Joe Broadus, Bridge Commissioner.

CLAYTON, ALA.—The Barbour County Commissioners have decided to build an iron bridge across Chennahatchie Creek.

COLLEGE POINT, N. Y.—A drawbridge over Flushing Creek, according to report, is proposed.

COLUMBUS, MISS.—J. E. Cox has the contract for a bridge across Cachura Creek on Macon Road; also for a bridge over Magowah Creek. (Oct. 27, p. 750.)

COURTENAY, B. C.—Proposals will be received by W. S. Gore, Deputy Commissioner of Lands and Works Department, Vancouver, B. C., until Nov. 18, for a bridge across the Courtenay River at this place.

DELMAR, LDA.—A steel suspension bridge is to be built across the Snake River at the Blue Lakes by the Idaho Gold Mining Co. of Montreal.

DETROIT, MICH.—Reports state that plans for the new bridge at the upper end of Belle Isle are being prepared. It is proposed that the structure shall be 75 ft. wide and contain a 10-ft. bicycle track and two 8-ft. walks. The general dimensions were given Feb. 11, p. 130.

DUBUQUE, IA.—About 100 men were put to work last week by the Illinois Central RR. on the bridge across the Mississippi River at Dubuque. The old structure is to be removed and the bridge entirely rebuilt. It is intended to carry on the work so as not to interfere with the traffic of the road, and the work will be done in the winter so as to get rid of the river traffic, which would otherwise interfere with the construction. The improvement, together with the reconstruction of the approaches to the bridge, will cost \$200,000.

DYERSBURG, TENN.—The county court has appointed a committee, composed of H. C. Porter, A. L. Fumbanks, Dr. Arnold and Geo. T. Weakley, Chairman, to call for plans and specifications for an iron bridge over the Obion River. The bridge will be about 1,900 ft. long and have wood abutments.

FORT COULONGE, QUE.—Reports state that Pontiac County contemplates a new interprovincial bridge across the Ottawa River at Lapasse.

FORT FAIRFIELD, ME.—The Town Council has decided to build a steel bridge over the Aroostook River, with granite piers, at a cost of about \$27,000, to replace the present wooden bridge.

GRAND RAPIDS, MICH.—The City Engineer, in a communication on the proposed Bridge St. bridge, said that a structure 60 ft. wide would cost \$100,000.

HADLEY, MASS.—The Northampton & Amherst Electric RR. offers to pay half the cost of separating the grades at Flaherty's crossing.

HAMPTON, N. H.—Reports state that the Boston & Maine will build a new bridge across the Hampton River.

INDIANAPOLIS, IND.—The Board of Public Works, Nov. 6, received the following bids on various plans for a bridge of three spans, 74 ft. long, 60 ft. wide at Illinois St.:

Steel Structure—Lafayette Bridge Co., \$21,590; Toledo Bridge Co., \$21,800; New Columbus Bridge Co., \$21,900; Indianapolis Bridge & Iron Works, \$22,100; Wabash Bridge & Iron Works, \$23,000; Pittsburg Bridge Co., \$23,978; Canton Bridge Co., \$24,000; Haugh-Noelke Co., \$24,100; Wrought Iron Bridge Co., \$24,639; Bellefontaine Bridge & Iron Co., \$24,990; Wisconsin Bridge & Iron Co., \$26,760.

Stone Bridge at Illinois St.: J. S. Patterson & Co., \$68,583; Otto Strange, \$69,000; Capital Paving & Construction Co., \$64,836.35; Koss & Fritz, \$69,314.

Concrete and Steel Arch Bridge at Illinois St.: J. S. Patterson & Co., \$58,730; M. M. Defrees, \$55,332, or both bridges, \$113,000; Thatcher plan, \$44,538, or both bridges, \$89,680; Otto Strange, \$53,000; Capital Paving & Construction Co., stone concrete, \$55,497.05, gravel concrete, \$53,728.05; Hoosier Bridge Co., \$50,900, or \$8,000 less if both contracts are awarded it.

For a stone bridge of three spans, same length, but 70 ft. wide, at Meridian St.: Capital Paving Co., Construction Co., \$76,160; J. S. Patterson & Co., \$76,300; Koss & Fritz, \$77,200; Otto Strange, \$77,400.

Concrete and Steel Bridge at Meridian St.: M. M. Defrees, \$60,532, or Thatcher plan, \$47,647; Shover & Austin, \$54,440; Capital Paving & Construction Co., stone concrete, \$59,613; gravel concrete, \$57,573.95; J. S. Patterson & Co., \$58,693; Hoosier Bridge Co., \$56,890. (Balustrade, \$6.90 per lineal ft.) Eight hundred dollars less on both bridges allowed if both are awarded.

Messrs. Shover & Austin got the contract for the Meridian St. bridge, which will cost when completed \$54,440, and the Hoosier Bridge Co. the contract for the Illinois St. bridge at \$50,900. Both are Indianapolis builders. Both bridges will be of Milan arch construction and cross Fall Creek.

The Commissioners postponed indefinitely the matter regarding the Washington St. bridge.

IRONTON, O.—Reports state that a bridge will be built across the Ohio River between Ironton, O., and Ashland, Ky. A company was incorporated last March to build a bridge at this place. (March 24, p. 215.)

JERSEY CITY, N. J.—We are told that plans and specifications are being prepared for the next meeting of the Board of Chosen Freeholders of Hudson County for a bridge over Baldwin Ave.

JOHNSTOWN, N. Y.—We are told that a decision in the matter of a viaduct over the F. J. & G. RR. on West Main St. by the Railroad Commissioners is expected by the 20th. W. W. Crouse, City Clerk. (March 31, p. 233.)

KANSAS CITY, MO.—The Park Board contemplates building a bridge at Benton Boulevard, across the Belt Line tracks. It will probably be a stone structure 72 ft. wide.

The city is endeavoring to compel the K. C. Belt Ry. Co. to replace the dilapidated structure over their tracks at Olive St. with a new steel bridge. It will probably not be rebuilt until next summer. No plans have been made.

KNOXVILLE, TENN.—Reports state that the Atlanta, Knoxville & Northern RR. will expend about \$15,000 on its roadbed and bridges between this city and Hiwassee. H. K. McHark, President, 40 Wall St., New York.

L'ANGE-GARDIEN, QUE.—The municipal Council of Canrobert decided at a meeting, Nov. 6, to ask for tenders for a steel bridge.

McKEESPORT, PA.—It is stated that a bridge is to be built to connect Glassport with Coal Valley. The Pittsburg Steel Co. is said to be interested.

MEMPHIS, TENN.—Reports state that the county contemplates building an iron bridge at Hindman Ferry.

METROPOLIS CITY, ILL.—Engineers, according to report, are making a preliminary survey for the Chicago, Paducah & Southeastern RR. bridge to cross the Ohio River at this point.

MIDDLETOWN, O.—Reports state that the Titus Ave. hoist bridge, which cost 7,000, recently collapsed.

NEW YORK, N. Y.—Proposals will be received Dec. 7 by the Commissioners of the New East River Bridge for the steel cables, suspenders, etc., as advertised in the Railroad Gazette.

OTTAWA, ONT.—The question of a bridge at Bank St. is again being agitated. Application will be made to Parliament for permission to build. (Aug. 25, p. 601.)

PECKVILLE, PA.—The Borough Council has appointed a committee consisting of J. J. Parry and Geo. Williams, to consider the matter of a bridge over Hulls Creek at Fourth St.

PITTSBURGH, PA.—The plans and specifications for the Fort Pitt Traction Co. to abolish the grade crossing at Thirty-third St. and the Pittsburgh Junction RR., were filed with the Common Pleas Court Nov. 9. It is proposed to build a steel viaduct at a cost of about \$57,000. There are to be 13 spans, of 50 ft. each, and one span of 50 ft. over the steam railroad tracks. The Traction Co., the railroad and the city will share the cost of the improvement.

PITTSSTON, PA.—Reports state that a new bridge is contemplated across the Susquehanna River near this place.

PORTAGE DU FORT, ONT.—Messrs. Fraser & Perkins, of Ottawa, propose to build a bridge over the Ottawa River in connection with a projected railroad.

PORTLAND, ORE.—Regarding the bridge on Front St., across the Marquam gulch, we are told that it is an old wooden structure to be rebuilt in the near future, but at once temporarily repaired by the City Engineering Department. Wm. B. Chase, City Engineer.

ST. GEORGE (S. I.) N. Y.—The bridge used by the Staten Island Rapid Transit Ry. to reach the St. George ferry house was destroyed by fire Nov. 12.

ST. PAUL, MINN.—The City Engineer has made a list of all the bridges in the city that need repairing. The estimated cost of the work in each case is: The Third St. bridge, \$13,500; University Ave., \$21,000; South Robert St., \$3,100; Lafayette Ave., \$2,700; Minnehaha St., \$2,400.



**SALEM, MASS.**—The County Commissioners have under consideration a new bridge on Essex St., Swampscott, near the Salem boundary line. The present structure is about 28 ft. wide and crosses the Boston & Maine railroad.

**SCRANTON, PA.**—Petitions for the following bridges were presented to the grand jury: For a bridge over the west branch of Fall Brook in Fell Township; over the Roaring Brook in Covington Township; a bridge in the township of West Abington; a bridge in Scott township; a bridge over Meyer Creek, in the township of Benton; for a bridge in Blakely Borough.

**SOUTH BETHLEHEM, PA.**—We are told that the Lehigh Valley RR., as in former years, is making a list of bridges requiring renewals or repairs, to keep up with the increased rolling stock and modern designs. The inspection covers the whole system.

**SOUTHWEST CITY, MO.**—The Arkansas & Oklahoma RR. will need one bridge 600 ft. long on the extension to Grand River. The Ozark Construction Co. are the general contractors. J. M. Bayliss, Cassville, Mo., is President.

**SUFFOLK, VA.**—Bids are wanted Nov. 23, according to report, for a bridge 108 ft. long, with a 90-ft. draw. John T. Capp, City Commissioner.

**TACOMA, WASH.**—Reports state that the Tacoma Ry. Co. is about to rebuild the long bridge at Fern Hill.

**TAZEWELL, TENN.**—An iron bridge 300 ft. long will be built over Powell's River by Claiborne County at an estimated cost of about \$6,000.

**THREE RIVERS, QUE.**—The iron bridge across the St. Maurice River at this place, to replace the wooden structure recently burned, will be about 2,100 ft. long. It has not yet been decided what design of bridge will be built, but we are told that bids will shortly be wanted by the Secretary and Treasurer, Thomas Desaulniers, of the Corporation of the City of Three Rivers.

**TORONTO, ONT.**—The Railway Committee of the Privy Council has ordered a subway or overhead bridge at Lansdowne Crossing of the Metropolitan Ry. Co. and the Canadian Pacific. J. S. Fullerton, Q. C., represented the city.

**WILKES-BARRE, PA.**—Of the 67 bridges applied for, the Grand Jury have recommended 22. The list is headed by an appropriation of \$8,000 toward a double stone arch bridge over what is known as the Kingston Pond Hole, in the Boroughs of Kingston and Dorranceton. It will consist of two arches 40 ft. span, with 8 ft. rise on piers 3 ft. high; roadway 60 ft. wide at one end and 76 ft. 6 in. at the other; to carry a double track of the Wilkes-Barre & Wyoming Valley Traction Co., wagon road, and a 7-ft. sidewalk; roadway to be paved with vitrified brick on concrete base. Estimated cost, \$15,000. The traction company will make up the difference between cost and the appropriation.

In connection with this, another bridge will be built over the Wilkes-Barre Pond Hole, in Dorranceton Borough, both being on line of main road between Wilkes-Barre and Kingston. This second bridge will consist of four 40 ft. spans similar to those of the first bridge, but the traction company's tracks will be carried on steel beams on piers on the downstream side. This bridge will be built by subscriptions from the corporations and individuals interested. The estimated cost of Wilkes-Barre Pond Hole bridge, including traction company's part, is \$30,000. Bids for the first will be received next spring by the County Commissioners and for the second by a committee of the Wilkes-Barre Board of Trade. H. S. Smith, 79 Coal Ex., Wilkes-Barre, Pa., Engineer.

**WOODLANDS, MAN.**—Tenders for building a steel bridge at Long Lake are wanted by E. P. Langrell.

**WOODSTOCK, ONT.**—The question of building a subway under the Grand Trunk Ry. tracks at Bay St. will be considered at an early meeting of the Council.

#### Other Structures.

**AKRON, O.**—We are told that the Cleveland Terminal & Valley RR. Co. does not contemplate any change in the station at Howard St., Akron, as reported, but the company is, however, contemplating doubling the freight facilities at that point on account of increased business.

**ANDALUSIA, ALA.**—Reports state that the Central of Georgia will build a new depot at Andalusia.

**ATLANTA, GA.**—The combined railroad companies entering this city held a meeting last week to consider plans for the new union station. The railroad officials considered two propositions. The first, that the State build the depot on plans agreed upon by the railroads, the roads to pay 5 per cent. interest on the cost of same. Second, the railroads to build the depot at their own expense, the State to have the right to buy it 20 years hence. A decision is expected in about two weeks.

**BALTIMORE, MD.**—Baldwin & Pennington have plans and specifications prepared for the steel frame bank building for the German Savings Bank. It will be fire-proof and have steel vaults. The cost is estimated at \$60,000.

**BEAVER CREEK, MAN.**—The Northern Pacific Ry. Co. will build a station and elevator at Beaver Creek.

**BROOKLYN, N. Y.**—Captain Peter C. Asserson, Chief of Engineers, U. S. A., and Francis T. Bowles, Chief Naval Inspector, have submitted plans to the Navy Department for alterations on the water front at the Brooklyn Navy Yard.

A new theater will be built by Hyde & Behman Amusement Co., at Broadway, Flushing and Graham Aves.

**CARLSBAD, N. M.**—The Rev. A. J. Emerson of this place proposes to build a sanitarium here.

**CHICAGO, ILL.**—Alderman Coughlin introduced an ordinance that the Commissioner of Public Works be instructed to purchase ground and build a police headquarters, to cost not more than \$100,000.

It is reported that Swift & Co. is about to enlarge its Chicago shops so that about 10 cars a week can be turned out there.

**CLIFTON, N. J.**—The Erie RR. station at this place was destroyed by fire Nov. 12.

**CUMBERLAND, MD.**—The West Virginia Central Ry. will build an iron addition to the freight warehouse.

**DENVER, COLO.**—Reports state that the Pullman's Palace Car Co. will build a repair shop in Denver, and that a site has already been secured.

**EASTON, PA.**—Bolton & Savage, of Philadelphia, will make the plans for a new dormitory building for Lafayette College, at Easton; also, for alterations and additions to the present three buildings, the whole to contain more than 300 rooms.

**EAST ST. LOUIS, ILL.**—The Railroad and Warehouse Commission on Nov. 7 received a communication from C. F. Parker, President of the East St. Louis Relay Depot Assn., stating that the various railroads had agreed upon plans for a new depot. They will hold a meeting Nov. 21.

**EAST THOMPSON, CONN.**—The station at this place, on the Midland Division of the Consolidated road, together with the engine house, signal tower, freight and ticket offices, were destroyed by fire Nov. 6.

**EDDYSTONE, PA.**—Reports state that the Grusen Iron Co. will build a large plant on ground recently bought here.

**FOND DU LAC, WIS.**—The Wisconsin Central proposes to build new shops here. The principal buildings are four in number. One will be 480 ft. long and 160 ft. wide, to be partly used as a car repair shop. A round house and store houses are also proposed.

**GREENVILLE, MISS.**—Reports state that the Southern Ry. contemplates improving its coal handling facilities at Greenville.

**HACKETTSTOWN, N. J.**—Reports state that the Centenary Institute of the Methodist Church, the buildings of which were destroyed by fire a few weeks ago, will be rebuilt at once. It is stated that the rebuilding will cost about \$300,000.

**HUNTSVILLE, ALA.**—A meeting of the Board of Directors of the Dallas Mfg. Co. will be held at Huntsville soon, to complete arrangements for the enlargement of the Dallas Mills. The mill will probably be enlarged to 50,000 spindles and a bleachery established. Expenditures will amount to about \$700,000.

**JAMAICA, L. I.**—The Democratic Club will build a new club house at this place.

**JERSEY CITY, N. J.**—Mayor Hoos has advised the city officials not to issue the \$300,000 bonds for high schools until next year.

**MILWAUKEE, WIS.**—The Christensen Engineering Co. will build at once a new foundry 80 x 200 ft., and a brick factory 200 x 400 ft.

The Pabst Brewing Co. will not build, as recently reported.

**MOBERLY, MO.**—A Y. M. C. A. building will be built in this city. The Wabash RR. will make an appropriation.

**MOUNT HOLLY, N. J.**—A new State insane asylum will be built by Burlington County at an estimated cost of \$60,000. It will be partly two and partly three stories, 300 ft. wide and 350 ft. long. The building will be in the shape of an E. Mr. Thomas Stephen of Camden is the architect. The time for receiving bids is not set. Work will probably be begun in the spring.

**NEWPORT, KY.**—A new library building will be built. Rev. W. B. McCready is interested.

**NEW YORK, N. Y.**—At 113th St., near Amsterdam Av., an eight-story brick and stone apartment will be built by R. W. Treffenberg. David W. King, No. 202 Broadway, is taking estimates for a general contract. An eight-story fireproof loft building, 37 x 92 ft., will be built at 7 E. 17th St. by John Walker, No. 171 Broadway, owner and builder; F. Baylies, Bible House, architect. Contracts for granite and limestone have been let; owner is open for bids on all other work.

Irving Place, southwest corner of 18th St., a six-story telephone building on lot 52 x 100.1; New York Telephone Co., owners; C. L. W. Eiditz, No. 1123 Broadway, architect, is taking estimates for a general contract.

The Commissioner of Public Buildings, Lighting and Supplies is authorized to employ an architect and have plans prepared for an armory for the First Battery at Sixty-sixth St., near Columbus Ave., on ground owned by the city.

The Roman Catholic Orphan Asylum will build new four and five story buildings on the east side of Sedgwick Ave., north of 189th St., at a cost of about \$1,000,000.

Plans were filed Nov. 13 with the Building Dept. by the Mutual Life Insurance Co., through its architects, Clinton & Russell, for two large office buildings as annexes to its present building. One of the structures, a 14-story building, will be at 51 to 55 Cedar St. and cost \$450,000; the other, a 15-story structure, will occupy the lots numbered 20 to 26 Liberty St., the cost being estimated at \$550,000, or a total outlay of \$1,000,000. The buildings will have a steel frame, the facades being brick, granite and limestone, with terra cotta copings. The Cedar St. building, covering a plot 73.6 x 65.4, will be known as Annex A, and that on Liberty St., 112.6 x 46, as Annex B.

**PHILADELPHIA, PA.**—Estimates are being made by Macey, Henderson & Co., Heed Building, for an extension to the car shops of the Brill Car Co. at West Philadelphia. It will be 45 ft. long, of brick and iron, one story, with slate roof, iron framework, electric wiring, etc.

It is stated that the Pennsylvania RR. will build a new station at Germantown Junction.

The Baldwin Locomotive Works is asking plans and estimates for a six-story brick and iron building, 207 ft. front on Broad St. and 75 ft. deep on Pennsylvania Ave. and Hamilton St.

William Steele & Son will build a three-story brick shovel factory, 20 x 102 ft., for Sheble & Klemm, on the east side of Ashland St., near Frankford Creek, Frankford. It will cost about \$35,000.

Theodore Kollischer will build a three-story ice plant, 113.2 x 381.6 ft., on the west side of 27th St., above South. The total estimated cost of the structure is \$150,000, including piling and foundations.

Harry Brocklehurst is about to build for the Midvale Steel Works, Wissahickon Ave., and the Read-

ing Railway, Nicetown, an open hearth plant, 188 x 330 ft. and 26 ft. high, and a 9-ft. retaining wall, 71.8 ft. long, at a total cost of \$18,000.

The Pennsylvania Salt Mfg. Co. is about to build on its ground on the Delaware, between Shunk St., and Oregon Ave., a two-story brick building 125 x 72 ft., at a cost of \$3,000.

It is estimated that \$4,000,000 will be required to complete the work on the City Hall.

**RICHMOND, VA.**—The union station to be built at Richmond by the Chesapeake & Ohio and the Richmond, Petersburg & Carolina will be four stories in height, 110 ft. wide and 120 ft. long. Wilson Bros. & Co. of Philadelphia are the architects. It will be fire-proof, of steel skeleton and stone and brick, and exclusive of the train shed, is estimated to cost \$100,000. It is expected that work will be begun early in the spring.

**ST. LOUIS, MO.**—Reports state that a new city hospital is proposed.

The Anheuser-Busch Brewing Assn. will build an addition to its brewery on the north side of Pestalozzi St., between Ninth and Tenth Sts., to cost about \$20,000.

An eight-story business house will be built for N. & J. Friedman at Eighth and Lucas Aves.

**SALINAS, CAL.**—In connection with the new yard the Southern Pacific will build at this place, the usual round houses, intermediate shop facilities, coaling plant and water supply fixtures will be necessary.

**SAN FRANCISCO, CAL.**—Elections will probably be held late in December to vote on the question of issuing upward of \$10,000,000 of bonds for the extension of the Park Panhandle, for a new sewerage system, a new county hospital and for new school buildings.

**SENECA FALLS, N. Y.**—The Goulds Mfg. Co., Seneca Falls, N. Y., have secured ten acres of land, and have made plans for new buildings, which contemplate a machine shop 258 ft. in length by 100 ft. in width; boiler house 44 ft. x 67 ft.; a foundry 122 ft. in depth by 85 ft. in width, and a pattern warehouse 78 x 30 ft.; also coke and sand sheds of suitable dimensions. The buildings will be one story in height, and supplied with improved machinery for handling great bodies of iron, and to make Triplex Pumps. Side tracks from the New York Central Railroad will be run around the buildings. When completed, they will give employment to a largely increased number of employees. The new buildings will cost from \$50,000 to \$60,000, and work upon them will soon be begun.

**TERRE HAUTE, IND.**—The Board of Directors of the Y. M. C. A. have decided to build a new Association hall at a cost of about \$40,000 or \$50,000.

**VANCOUVER, B. C.**—The Canadian Pacific RR. will connect Stimson's wharf and that of the Union Steamship Co., making a wharf front of half a mile long. The work will cost about \$80,000. A shed 350 ft. long will also be built.

**WASHINGTON, D. C.**—Reports state that architects are preparing plans for a hotel at the corner of Pennsylvania Ave. and Fourteenth St. Joseph Willard may be addressed.

**WICHITA, KAN.**—Lehman & Higginson, wholesale grocers, according to report, contemplate erecting a new business building.

**WORCESTER, MASS.**—The New York, New Haven & Hartford is to enlarge and rearrange its freight yard near the Common, at Worcester, and will build a new freight house for outward business. This station, originally the station for the Norwich division of the former New England railroad, will now be used for both of the divisions of the Consolidated roads terminating in Worcester, the Norwich and the Providence divisions.

#### MEETINGS AND ANNOUNCEMENTS.

##### Dividends.

Chestnut Hill.—Quarterly, 1½ per cent., payable Dec. 4.

Cleveland & Pittsburgh.—Quarterly, 1¼ per cent., payable Dec. 1.

Delaware & Bound Brook.—Quarterly, 2 per cent., payable Nov. 20.

Northern Pacific.—Quarterly, preferred, 1 per cent., payable Dec. 5.

Philadelphia, Germantown & Norristown.—Quarterly, 3 per cent., payable Dec. 4.

Third Ave. (N. Y.).—Quarterly, \$1.25 per share, payable Nov. 29.

##### The Engineers' Club of Philadelphia.

At a regular meeting of the Club on Saturday, November 18, the paper will be on "The Atbara River Bridge," illustrated, by Richard Khuen, Jr.

##### Western Society of Engineers.

At a meeting of the Western Society of Engineers, held November 15, in the society rooms, Monadnock Block, Chicago, Mr. C. E. Schaeffer read a paper entitled, "Cement Coating; a New Method for Waterproofing Brick Walls and Masonry."

##### New England Railroad Club.

At the regular meeting held Nov. 14, the subject of the evening was "Railroad Sanitation." Prof. S. H. Woodbridge of the Massachusetts Institute of Technology, presented a paper on the "Heating and Ventilation of Cars," with illustrations by the stereopticon.

##### Western Railway Club.

A meeting of the Western Railway Club will be held Tuesday afternoon, November 21, at the Auditorium Hotel, Chicago. Two papers will be presented for discussion, one by Mr. R. T. Shea, entitled, "Piece Work in a Railroad Shop," and the other, by Mr. M. E. Wells, "Pooling of Locomotives."

##### Northwest Railway Club.

Mr. P. H. Conradson, Chief of the Bureau of Tests and Lubrication of the Galena Oil Company, gave an illustrated lecture on bearing metals at a meeting of the Northwest Railway Club, held November 14, at the Ryan Hotel, St. Paul, Minn. The subject of the use of tools in machine shops was discussed.

##### New York Railroad Club.

A regular meeting was held in the rooms of the American Society of Mechanical Engineers, at eight



p. m., on Thursday, November 16. Prof. E. W. Scripture, Director of the Psychological Laboratory of Yale University, read a paper on "Color Blindness and Its Tests." The annual election of officers was held.

### PERSONAL.

(For other personal mention see Elections and Appointments.)

—Mr. A. S. Richardson, at one time Secretary of the Houston & Texas Central, died Oct. 30.

—Mr. C. F. Hettler, Western Purchasing Agent of the Pennsylvania, died at Fort Wayne, Ind., Nov. 6, of pneumonia.

—Mr. C. J. Fosselmann, formerly Vice-President and Treasurer of the Waterloo & Cedar Falls Rapid Transit Co., died at Waverly, Ia., Nov. 9.

—Mr. M. F. Egan, formerly Superintendent Motive Power of the Union Pacific, Denver & Gulf, now the Colorado & Southern, died Nov. 5. Mr. Egan was 46 years old.

—Mr. William Buchanan, lately Superintendent of Motive Power and Rolling Stock of the New York Central, has been presented with an engrossed and illuminated copy of resolutions passed by the Board of Directors on his retirement from the service. The testimonial bears the signatures of Messrs. Depew, Callaway and Worcester, members of the special committee on resolutions.

—Mr. R. M. Galbraith, General Master Mechanic of the St. Louis Southwestern, has resigned and will retire from railroad work. Mr. Galbraith was Division Master Mechanic of the Union Pacific in 1874, in 1890 Master Mechanic of the St. Louis, Arkansas & Texas RR., in Texas, and finally became General Master Mechanic of the S. S., from which position Mr. Galbraith has just resigned. Mr. R. H. Johnson, Master Mechanic of the Atlanta & West Point, will succeed Mr. Galbraith as General Master Mechanic of the S. S.

—Mr. E. A. S. Clarke has resigned as General Manager of the Illinois Steel Company, to take effect Nov. 15, and has made an engagement with the Deering Harvester Company, of Chicago. Mr. Clarke is about to sail for Europe, to be gone a few months, before taking up his new work. He is succeeded as General Manager of the Illinois Steel Company by Mr. T. W. Robinson, who is now General Superintendent of the Joliet Works, and for many years was General Superintendent of the Steel Department of the Colorado Fuel & Iron Company. As many of our readers know, Mr. Clarke is the son of Mr. T. C. Clarke.

—Mr. William F. Durfee died in the State Hospital at Middletown, N. Y., on the 14th, where he had been for about two weeks. Mr. Durfee was 66 years old, was a graduate of the Lawrence Scientific School of Harvard University, and was one of the pioneers in the development of the iron and steel industry in the United States. He was a scholarly man, ingenious and studious, and made a very considerable impression on the industrial development of his country. He was a member of the American Society of Mechanical Engineers, of which he had been Manager from 1883 to 1886, and Vice-President from 1885 to 1898.

—Mr. Clarence A. Carpenter, Assistant Engineer, Lake Shore & Michigan Southern Ry., died Thursday of last week at the General Hospital in Cleveland, O., of injuries received on Tuesday when he was hit by a railroad train at Saybrook, O. Mr. Carpenter was born at Dedham, Mass., in 1846, and began railroad work at the age of seventeen as a rodman. He had served ever since as an engineer with the Missouri, Kansas & Texas, the Little Rock & Fort Smith, the Union Pacific and other railroads. At the time of his death he was Engineer of the Lake Shore Division of the Lake Shore & Michigan Southern. He became a member of the American Society of Civil Engineers in May, 1888.

—Mr. L. R. Pomeroy, who has been for some six or seven years the Eastern Agent of the Cambria Steel Co. and the Latrobe Steel Co., has resigned that position to take effect Nov. 15, and about the 20th he will go to the Schenectady Locomotive Works. The title of his position there has not yet been definitely announced, but his duties will be in Schenectady and pretty close to Mr. Pitkin. Mr. Pomeroy entered railroad work in 1886, after a dozen years or more of commercial counting house experience. In that year he became Secretary and Treasurer of the Suburban Rapid Transit Railroad in New York, now a part of the Manhattan system. In 1890 he entered the sales department of the Carnegie Steel Co., where he stayed for two years and then took up the work which he now leaves to go to Schenectady.

—Hon. Joseph W. Fifer, ex-Governor of Illinois, has been appointed by President McKinley to the place on the Interstate Commerce Commission made vacant several weeks ago by the resignation of Mr. Calhoun, who also was from Illinois. Mr. Fifer is 57 years old. He was born in Virginia, but went to Illinois early in life. He served as a private in the army from the opening of the War of the Rebellion to 1864 and was severely wounded. At the close of the war, carrying out an ambition which was formed before he enlisted, Mr. Fifer secured a legal education, working his own way, and became a practicing lawyer in Bloomington. His political career began in 1872 and he was Governor from 1888 to 1893. His home is in Bloomington. We do not understand that Governor Fifer possesses any special qualifications for the office to which he is now appointed. His record as Governor of Illinois is creditable and his personal integrity is unquestioned; but his fitness for the technical and difficult question of commerce and legislation, which will come before him as Commissioner, is yet to be shown.

—General William McE. Dye died at the temporary home of his family in Muskegon, Mich., last Monday. He returned only a few weeks ago from Corea, where he had served that kingdom eleven years as Inspector General and Vice-Minister of War. His health was much shattered and he had stopped in Muskegon only till he might gain enough strength to go to Washington, where he had hoped to spend the rest of his days. General Dye was a gallant and accomplished soldier, a graduate of West

Point, a veteran of our civil war, and later of the Khedive's army. In the civil war he was brevetted Brigadier General of Volunteers for gallant and meritorious conduct. He resigned from the regular army five years after the end of the war and ultimately went to Egypt as Colonel of the General Staff. There he was an important figure and much trusted. At the disastrous battle of Gura, in Abyssinia, he saved from destruction that part of the Egyptian army which was saved. He held the right with a battalion of infantry and a battery until every man of them was killed or wounded, being seriously wounded himself. This enabled a considerable number of the force to escape to a fort on the left. General Dye was neither an engineer nor a railroad officer, but to the editor of the Railroad Gazette it is a duty to record here this inadequate note of the life and fate of a loyal comrade, and a brave and upright man.

—We have already announced the coming retirement of Mr. Clark as President of the New York, New Haven & Hartford and published a brief account of his career (Sept. 22, page 667). Last Saturday, Mr. J. M. Hall, Vice-President, was elected President to succeed Mr. Clark. Concerning the new President and his policy, we can do no better than to quote the words of the well-informed New Haven correspondent of the New York Evening Post: "President Hall is 58 years old. He was born at Willimantic, Conn., and was graduated at Yale in the class of 1866, after taking very high literary honors. He was graduated at Columbia Law School in 1868, and was admitted to the New York bar in the same year. During his law practice at Willimantic he was elected three times to the lower Connecticut house—serving as Speaker in 1882—and sat for one term in the State Senate. He was appointed a Judge of the Superior Court in 1889, and would probably ere this have been promoted to the Supreme bench but for his resignation of his judgeship in 1893 to take the Vice-Presidency of the New Haven Railroad Company, which he has held for six years. From knowledge of President Hall's character and general plans, the future policy of the New Haven Company, should it remain an independent corporation, can be pretty clearly outlined. The plans of President Clarke have now about reached their natural limitations. There remain in the line of costly improvements one or two at or near the Eastern terminals—the Bristol, Conn., improvement to cost some \$200,000, and the Bridgeport four-tracking scheme, to cost not less than \$3,000,000, perhaps considerably more. With these improvements completed, the property will be given a rest from the old policy of expansion, the 8 per cent. dividend conserved but not increased, and surplus devoted to better service and to construction and equipment account. Large earnings in good times will be used to safeguard the dividend in bad times, and there will be kept especially in view the fact that three years hence the conversion of the company's outstanding debentures will increase by about one-quarter the capital stock of the company calling for 8 per cent. dividends—only partly offset by the probable saving of some \$300,000 in fixed charges two years later by the refunding of the New England first mortgage bonds. During the administration of President Clarke, occupied with large measures, a considerable number of sinecures have crept into the administrative service and have aroused some criticism of stockholders. These, it is believed, President Hall, who is a sharp economist, will weed out with a firm hand.

"The election as Vice-President of ex-President W. D. Bishop of Bridgeport, is of a temporary character and made necessary under the by-laws to preserve the working organization of the company. It is probable that his place will be taken ere long by an experienced general traffic manager. The position of Second Vice-President, held for some years by President Mellent of the Northern Pacific, will probably remain unfilled."

### ELECTIONS AND APPOINTMENTS.

Atchison, Topeka & Santa Fe.—We are informed that J. J. Frey, General Manager, has tendered his resignation.

Atlanta & West Point.—F. O. Walsh has been appointed Master Mechanic in charge of Locomotive and Car Departments, with headquarters at Montgomery, Ala., succeeding R. H. Johnson, resigned.

Baltimore & Ohio.—W. H. Harrison, Jr., Master Mechanic, with headquarters at Newark, O., has resigned.

Birmingham & Atlantic.—J. A. Edwards is Chief Engineer of the B. & A.

Bradford Central.—Geo. A. Ricker has been appointed Chief Engineer of this company, whose road is now building. (RR. Construction column, Aug. 18, p. 588.)

Burlington & Missouri River in Nebraska.—A. B. Pirie, Master Mechanic at Wymore, Neb., has been transferred to Havelock, Neb., succeeding E. S. Greusel, deceased. F. J. Craemer has been appointed Master Mechanic, with headquarters at Wymore, Neb., succeeding Mr. Pirie.

Carolina Central.—At a meeting of the stockholders, J. Williamson was elected a Director, succeeding J. Augustus Johnson.

Central Vermont.—D. A. Sheedy, Superintendent of Bridges and Buildings at St. Albans, Vt., has resigned.

Chattanooga Southern.—John King has been appointed Master Mechanic, succeeding H. T. Ellison, resigned, effective Nov. 5.

Chicago & Alton.—Wm. J. Hemphill, heretofore Master Mechanic of the St. Louis, Peoria & Northern, has been appointed Division Master Mechanic of the C. & A., with headquarters at Bloomington, Ill.

Cleveland, Akron & Columbus (Pennsylvania Lines).—S. E. Burke has been appointed Engineer Maintenance of Way, with headquarters at Akron, O., succeeding F. H. Alfred, resigned. J. J. Henry has been appointed Trainmaster, with headquarters at Akron, O.

Columbia Southern.—C. E. Lytle has been appointed General Freight and Passenger Agent, with headquarters at Moro, Ore.

Columbus, Sandusky & Hocking.—John Cullinan has been appointed Master Mechanic, succeeding B. S. Snyder, resigned.

Dansville & Mt. Morris.—At a meeting of the Stockholders, R. H. England, E. P. Roberts and A. O. Bunnell were elected Directors.

Erie & Central New York.—N. A. Bundy, General Manager, being on leave of absence and not exercising any of the duties of that office, L. A. Frederick is operating the road in President Chas. O. Scull's name.

Gulf & Interstate Ry. of Texas.—Wm. Selkirk has been elected Secretary.

Hoosic Tunnel & Wilmington.—Geo. F. Roberts has been appointed Assistant Superintendent.

Houston & Texas Central.—J. T. Mahl, Engineer Maintenance of Way at Houston, Tex., has resigned and as yet Mr. Mahl's successor has not been appointed, the duties being performed by the regular Engineer force of the H. & T. C.

Lake Superior Terminal & Transfer.—At a meeting of the stockholders, A. B. Plough was elected President and W. A. Scott Vice-President.

Louisiana & Arkansas.—The title of W. S. Smith has been changed from Traffic Manager to General Traffic Manager.

Louisville, Evansville & St. Louis.—W. K. Mosley has been appointed superintendent, relieving E. Holbrook, Chief Engineer, to this extent.

Middletown, Meriden & Waterbury.—At a meeting of the stockholders, held Nov. 7, the following new Directors were elected: Charles P. Clark, John M. Hall, George H. Brush, Arthur D. Osborne and Charles F. Brooker.

Milwaukee, Benton Harbor & Columbus.—S. L. Yendes has been appointed Master Mechanic, with headquarters at Benton Harbor, Mich., succeeding F. J. Pease.

Missouri Midland.—G. J. Grommet, formerly connected with the Choctaw, Oklahoma & Gulf at South McAlester, Ind. Ter., has been appointed Auditor of the M. M., with headquarters at St. Louis, Mo.

New York & Ottawa.—At the annual meeting of the stockholders, H. W. Gays, General Manager, was elected President, succeeding C. B. Hibbard and G. B. Colpas, Auditor, has been elected Assistant Secretary and Treasurer.

New York Central & Hudson River.—S. W. Simonds has been appointed Master Mechanic of the Hudson River and Harlem Divisions south of Albany.

New York, New Haven & Hartford.—J. M. Hall, heretofore Vice-President, was on Nov. 11 elected President, succeeding C. P. Clark, resigned. (Sept. 22, p. 667.) W. D. Bishop of Bridgeport was temporarily elected Vice-President, succeeding Mr. Hall.

Northern Pacific.—Charles F. Seeger, heretofore Commercial Agent at Philadelphia, Pa., has been appointed General Agent Freight Department, with headquarters at 47 South Third St., Philadelphia, Pa.

The Directors of the N. P. are as follows: Robert Bacon, Temple Bowdoin, William Nelson Cromwell, William J. Curtis, John H. Emanuel, Jr., Albert H. Gillard, William Pierson Hamilton, Walter B. Horn, Samuel E. Hiner, Charles W. King, Charles MacVeigh, Hall P. McCullough, Francis Lynde Stetson, all of New York.

Old Dominion Steamship Co.—Isaac P. Jernigan has been appointed Auditor, and E. R. Johnston Assistant Auditor, effective Nov. 8.

Pecos Valley & Northeastern.—Don. D. Donahue has been appointed Auditor, succeeding E. F. Draper, resigned, and E. W. Martindell succeeds Mr. Donahue as General Freight and Passenger Agent.

Pennsylvania.—J. H. Gumbes, heretofore Supervisor at Millersburg, Pa., of the Northern Central (Pennsylvania), has been transferred to Dravosburg. E. B. Wiseman, Supervisor at Shamokin, Pa., succeeds Mr. Gumbes at Millersburg, Pa., and Mr. Keenan, heretofore Assistant Supervisor of the New York Division at Tacony, has been appointed Supervisor, succeeding Mr. Wiseman, effective Nov. 15.

The Delaware Extension and Kensington Division will hereafter be known as the Philadelphia Terminal Division and D. H. Lovell, heretofore Superintendent of the D. E. & K. D., has been appointed Superintendent of the P. T. D., with headquarters at Thirty-second and Cowelton Ave., West Philadelphia, Pa. Effective Nov. 15.

Plant System.—Dr. R. L. Brydon has been appointed Acting Surgeon, Hospital Department, with headquarters at Waycross, Ga.

Roswell.—At a meeting of the stockholders, H. W. Miller was elected Secretary.

St. Louis & San Francisco.—At a meeting of the stockholders, Henry Marquand was elected a Director.

St. Louis, Kennett & Southern.—G. J. Whitney has been appointed Assistant Superintendent, succeeding J. J. Kress, resigned.

St. Louis Southwestern.—R. H. Johnson, heretofore Master Mechanic of the Atlanta & West Point, has been appointed General Master Mechanic of the S. L. S., succeeding R. M. Galbraith, resigned.

Saluda & Johnston.—Officers were elected at Saluda, S. C., Oct. 28, for this new company referred to in the Construction column, as follows: President, Alvin Etheredge; First Vice-President, George C. Wheeler; Second Vice-President, J. A. Attaway; Treasurer, B. W. Crouch; Secretary, J. B. Hunter; General Counsel, E. W. Able, J. M. Paget and J. B. Hunter.

San Francisco & San Joaquin Valley (Atchison, Topeka & Santa Fe).—Andrew Smith, heretofore Superintendent of Telegraph of the Santa Fe Pacific, has been appointed Superintendent of Telegraph of the S. F. & S. J. V., with headquarters at Los Angeles, Cal.

Southern Indiana.—Alex. Shields, Master Mechanic, with headquarters at Bedford, Ind., has resigned.

Troy Union.—F. L. Melcher has been elected a Director.



White Pass & Yukon.—J. G. Rogers has been appointed Division Superintendent, succeeding F. H. Whiting, resigned.

#### RAILROAD CONSTRUCTION. New Incorporations, Surveys, Etc.

**ALABAMA & FLORIDA.**—Trains began running Nov. 6 on this line from Georgiana, Ala., on the Louisville & Nashville, southeast 33 miles to Andalusia. The road is projected to run to Geneva and thence into Florida. The Louisville & Nashville is understood to be back of the project. E. L. More of River Falls, Ala., is President. (June 30, p. 482.)

**ARIZONA ROADS.**—The Gila Valley, Globe & Northern and the Southern Pacific are reported interested in a railroad to be built from Globe, on the G. V., G. & N., to run northwest about 200 miles via Williams to Flagstaff, with a branch line to Jerome. According to special Arizona legislation, the builders are given six months after Sept. 15 to begin actual grading. The road will tap several fertile valleys and mining districts, including the Rye and Gun Creek districts.

**ARKANSAS & OKLAHOMA.**—Grading is completed for 1½ miles on the extension from Southwest City, Mo., via Grove, I. T., to Grand River, 16½ miles. There is one bridge of 600 ft. There are 80 men at work. (Oct. 20, p. 736.) J. M. Bayliss, Cassville, Mo., is President. (Official.)

**ATCHISON, TOPEKA & SANTA FE.**—The company has completed track laying on the Kansas, Oklahoma Central & Southwestern for the entire distance from Caney, Kan., south 57.8 miles, via Bartlesville, I. T., and Collinsville, to Owasso, I. T. (Aug. 18, p. 588.)

**BALTIMORE & OHIO.**—Wade, Burns & Co. are reported to have a contract for grading a branch in Barbour County, W. Va., seven miles long. A number of improvements will be made at Fairmont, W. Va., involving an outlay of nearly \$100,000.

**BANGOR & AROOSTOOK.**—An officer writes that the extension from Caribou, Me., north 33 miles via New Sweden, Jemmland, Collins and Cabanas to Van Buren, is practically completed, and the company expects to have it open for traffic about Nov. 20. (Oct. 27, p. 753.)

**BELLINGHAM BAY & BRITISH COLUMBIA.**—Location is completed for 18 miles of line from Sumas, Wash., to Bolder Creek, and bids will be asked for grading within two weeks. The work is moderately heavy and the intention is to have the line in operation in about nine months. (Official.)

**BELLINGHAM BAY & EASTERN.**—Grading is completed for about two miles on the extension from New Whatcom, Wash., east via Blue Canyon to Wickersham, 20 miles. The section to Lake Whatcom, four miles, is under contract to J. G. Fairfowl of New Whatcom. A further contract of three miles at the head of Lake Whatcom will be let by Dec. 15. There are 25 teams and 75 men at work. The section between Blue Canyon and Wickersham, four miles, is surveyed. (Oct. 20, p. 737.)

The company will build at once an extension from Park, Wash., to timber, three miles, for which surveys are made. (Official.)

**BELINGTON & BEAVER CREEK.**—This company was incorporated in West Virginia Nov. 6, with a capital stock of \$200,000, to connect Belington with Beaver Creek in West Virginia. A. G. Dayton of Phillips, W. Va., is attorney.

**BLACKWELL & SOUTHERN.**—The Atchison, Topeka & Santa Fe, which owns this property, has completed the line from the Kansas & Southeastern, 2.19 miles south of Brame, to Tonkawa, 16.1 miles. The Shutt Improvement Co. of Pueblo, Colo., have the contract. (June 30, p. 482.)

**BOSTON & MAINE.**—Coleman Bros. of Everett, Mass., have the contract for grading and masonry on the Manchester & Milford extension (Nov. 10, p. 787) from Goffstown (Grasmere Station), southwest 18½ miles via Bedford, Merrimack and Amherst to Milford, N. H. (Official.)

**BRANDON & SOUTHWESTERN.**—D. H. Purdon, President, has given notice of application to be made to build from Brandon, Man., northeast to Cadstone, and thence southeast to Carmen; thence northeast to Winnipeg and south to the International boundary line in Range 5 or 6. This company is supposed to be backed by the Canadian Pacific. J. E. Evans of Winnipeg, Man., is Chief Engineer.

**BUFFALO, ROCHESTER & PITTSBURGH.**—Grading is nearly completed on the branch from Echo, Pa., south six miles to the Cowanshannock Coal Company's property at Rural Valley. The line will probably be finished by Jan. 1. (Nov. 3, p. 769.)

**CAIRO & KANAWHA VALLEY.**—Surveys are reported completed for an extension of this line from Cairo, W. Va., northwest about 20 miles to Williamstown, opposite Marietta.

**CAMMAL & BLACK FOREST.**—The company has completed its extension of 4½ miles from Pump Station, Pa., west to Kinley Camp. (Jan. 1, p. 15.) The work was done by the company. (Official.)

**CANADIAN PACIFIC.**—Grading to be begun soon, according to report, on the extension from Nelson, B. C., northeast about 25 miles to Balfour.

The Snowflake Branch, running from a point just west of La Riviere, Man., southeast 17.3 miles to Snowflake, is completed.

**CAROLINA NORTHERN.**—The company has 12 miles of road ready for track laying, and is at work on a 2,000 ft. trestle across Lumber River swamp, 1,500 ft. of which is completed. Track will be laid on the first five miles on completion of this trestle. The road as projected is from Lumberton, N. C., south 45 miles to Marion, S. C., both on the Seaboard Air Line, which is supposed to be back of the project. J. H. McRee of Lumberton is Chief Engineer.

**CENTRAL NEW ENGLAND.**—Grading is completed except one-half mile near Springfield, on the extension from Tariffville, Conn., northeast 14½ miles, via East Granby, West Suffield and Feeding Hills, to Springfield. Ryan & Kelley of 8 South Broad St., Philadelphia, have the contract. Track is laid from Tariffville to East Granby, 3½ miles. (Sept. 22, p. 657.) There are 300 men and 75 teams at work. (Official.)

**CHATTAHOOCHEE & GULF.**—Grading is in progress on the first 10 miles of this line from Columbia, Ala., into the southwestern part of the State. The line has been surveyed for about 70 miles, but the terminal is not yet determined. Grading was begun Sept. 20. E. T. Comer is President and H. W. Johnson Secretary and Treasurer, both of Savannah, Ga. (Oct. 20, p. 737.)

**CHATTAHOOCHEE VALLEY.**—Application is to be made to the Georgia Secretary of State for an extension of this line from West Point, Ga., north through the counties of Tropp, Carroll, Heard and Fulton to a point in Cobb County. With the extension building south from Glass, Ala. (Oct. 13, p. 719), the road when completed to Columbus on the south, and to this new point on the north, will be about 120 miles long.

**CHICAGO & ALTON.**—A number of improvements are to be made, according to report, on the line on either side of Alton, Ill., including the replacing with 90-lb. rails and the building of two bridges.

**CHICAGO & NORTHWESTERN.**—The Wall Lake, Warrior & Modamin line from Boyer, Ia., southeast 61.3 miles to Modamin, was open for traffic Nov. 12. The intervening stations are Kiron, Schleswig, Ricketts, Berne, Ute, Soldier, Moorhead, Preparation, Pisgah and Orson. (Sept. 15, p. 649.)

On the same date trains began running on the Harlan & Kirkman extension from Kirkman, Ia., south about seven miles to Harlan, on the Chicago, Rock Island & Pacific. (Nov. 3, p. 769.)

The Chicago, St. Paul, Minneapolis & Omaha, according to report, will make extensive improvements at Sioux City, Ia., including enlargement of the freight yards.

**CHICAGO, BURLINGTON & QUINCY.**—Announcement is made that the 30 miles of second track building since last spring from New London, Ia., to Batavia, east of Ottumwa, will be completed and ready for traffic early in December. (Aug. 14, p. 560.)

The Grant City & Southern extension from Grant City, Mo., south 27 miles to Bethany, is practically completed. (Oct. 20, p. 737.)

**CHICAGO GREAT WESTERN.**—Surveys are reported made for a spur of about four miles in the vicinity of Des Moines, Ia., to reach industries.

**CHICAGO, PADUCAH & SOUTHEASTERN.**—Surveys are reported in progress for this line from Vienna, Ill., southeast about 30 miles to Metropolis, and thence across the Ohio River to Paducah, Ky. Frank P. Read of Marion, Ill., has charge of the survey. (Nov. 3, p. 769.)

**CHICAGO, ROCK ISLAND & PACIFIC.**—Grading has been in progress for the past two months on the branch from Anadarko, O. T., south 30 miles to Fort Sill. (July 28, p. 547.)

The Enid & Tonkawa extension has been completed for 15 miles from North Enid, east to Garber, O. T., and trains are running on that section. It is to be extended east to Tonkawa, in all 51 miles. (Sept. 1, p. 619.)

Locating surveys are reported completed for an extension from Chickasha, I. T., to St. Pauls Valley. A portion of the contracts are let and grading is to be begun soon.

**CINCINNATI, HAMILTON & DAYTON.**—This company, which now runs trains over the Ironton from Dean's, O., south 12.5 miles to Ironton, is reported considering the advisability of building a line of its own.

**CLEVELAND, BARBERTON & WESTERN.**—The route of the line of this company recently incorporated in Ohio (Nov. 3, p. 769), is from Cleveland south about 30 miles through Cuyahoga, Summit and Wayne counties to Creston. Among the incorporators are Chas. C. Brenner, Forest Frisnone of Akron, and Edwin F. Voris of Cleveland.

**COLUMBUS & NORTHERN.**—Work is to be begun within 30 days, according to report, on this line from Deming, Ariz., north 35 miles, via Agiavampo, to Columbus. A. O. Bailey of Columbus is President. (May 12, p. 343.)

Surveys are completed and grading is to be begun soon on this line from Columbus, N. M., north 35 miles to Deming. A. J. Clark, Vice-President, and H. P. Olcott, Chief Engineer, both of Deming.

**CORSICANA & GULF VALLEY.**—The company hopes to begin work soon on this line from Corsicana, Tex., southeast about 165 miles to Houston, and thence east about 85 miles to Sabine Pass. The Fletcher-Alstrand Construction Co. of Chicago is reported interested. (Feb. 10, p. 108.)

**DELAWARE VALLEY & KINGSTON.**—This company was incorporated in New York Nov. 10, with a capital stock of \$2,500,000, to build a railroad along the old Delaware & Hudson Canal bed from Hawley, Pa., east to Rondout, N. Y. It is stated that the Erie & Wyoming Valley line is to be used from Hawley to Scranton. The principal office is at Port Jarvis, N. Y. The directors are: Samuel D. Coykendall, Kingston, N. Y.; Edward L. Fuller, Scranton, Pa.; Walter Ferguson, Stamford, Conn.; Jas. N. Jarvis, 71 Water St., New York; Frederic P. Olcott, 54 Wall St., New York; John W. Sterling, 44 Wall St., New York; Samuel Thorne, 1 Broadway, New York; William V. S. Thorne, 1 Broadway, New York; George G. Williams, 270 Broadway, New York.

**DETROIT & MACKINAC.**—Grading is completed for nine miles, and track is laid for four miles, on the extension from Black River, Mich., northwest toward Cheboygan. (Nov. 10, p. 787.) M. J. Griffin of Detroit, Mich., has the contract. (Official.)

**DOOLEY SOUTHERN.**—The company has decided not to extend its line beyond Pinia, Ga. (June 23, p. 461.)

**DULUTH & IRON RANGE.**—John Runquist of Two Harbors has the contract for a cut-off from Waldo, Minn., north 14.3 miles, via the Stewart River branch, to Thomas. The line is graded, but no track laid.

The cut-off from Waldo south to ore docks at Two Harbors, five miles, was completed on June 1. (Official.)

**DULUTH & NEW ORLEANS.**—The increased prices of rails and other material have led officers of this company to abandon the project of beginning work this fall on this proposed line from Duluth south through Iowa. S. V. Wardall of Ames, Ia., is President. (Aug. 18, p. 589.)

**EL PASO & NORTHEASTERN.**—Grading is reported completed on the Alamogordo & Sacramento Mountain extension from Toboggan, N. M., to Cox Canyon, 10 miles. (Oct. 20, p. 737.)

**ERIE EASTERN.**—This company, which proposes to build from Erie, Pa., south 19 miles to Mill Village, has been reorganized, with headquarters at Erie, Pa. J. F. Downing is President, and Edward Hewer, Secretary and Treasurer. (March 3, p. 161.)

**GEORGIA NORTHERN.**—J. H. Davidson of Thomasville, Ga., has the contract for completing the extension from Doe Run, Ga., northwest 22 miles to Albany. Only about six miles remain to be graded. W. L. Wardroper, 503 Gould Building, Atlanta, is Chief Engineer. (Sept. 22, p. 668.)

**GREAT NORTHERN.**—Grading is reported begun on the line from St. Bonifacius, Minn., northeast about six miles to Spring Park, on Lake Minnetonka. (Nov. 3, p. 769.)

Surveys are reported in progress for an extension from Index, Wash., via Galena to Troublesome Basin, about 15 miles.

**GREENBRIER & CHEAT RIVER.**—This company was incorporated in West Virginia Nov. 11, with a capital stock of \$50,000, to build a railroad from the forks of Greenbrier River north about 60 miles to Rowlsburg, on the Baltimore & Ohio. The incorporators are: Jos. K. Cass, Tyrone, Pa.; John G. Luke, New York City; Wm. Luke and Preston Lee, Wilmington, Del.; D. L. Luke, Piedmont, W. Va.; C. F. Moore, Covington, W. Va.

**HOUSTON, BRAZOS & NORTHERN.**—A charter has been filed in Texas for this line from Houston, Tex., north along the Brazos Valley to Fort Worth and thence to Tishomingo, I. T., 400 miles. The company controls the Texas Western, a narrow-gauge line from Houston to Sealy, 53 miles, and contract has been let for removing these rails. Colonel R. M. Hall of Houston, Tex., is interested. (June 23, p. 461.)

**IOWA CENTRAL.**—The work this company is about to do near Peoria, Ill., is of comparatively small importance. (Nov. 3, p. 769.) The company had an outside yard at that place for several years in which the switching of grain for the various industries and elevators at Peoria is done before the delivery to the terminal. This yard is low and subject to overflow from the Kickapoo River. The company has planned to put in a steam shovel on a sharp curve, about a mile outside of town, and use the dirt to raise the yards. There will be perhaps 50,000 cu. yds. of material used, and half a dozen additional tracks laid 2,000 ft. long. (Official.)

**JACKSONVILLE & ATLANTIC.**—Contracts are reported let for the extension from Pablo, Fla., to Mayport, 10 miles.

**JEFFERSON & NORTHWESTERN.**—This company has been organized to build a railroad from Jefferson, Tex., northwest about 25 miles to Linden.

**KANSAS CITY, PITTSBURGH & GULF.**—Surveys are reported completed and right of way secured for the extension from Port Arthur, Tex., south to Sabine Pass. This is to be built under the new incorporation, but it is said to be practically owned by the old company. (July 14, p. 515.)

**KANSAS CITY, ST. JOSEPH & OMAHA.**—Contracts for grading are to be let soon for the section of this line from Savannah, Mo., to Tarkio. Between St. Joseph and Savannah the tracks of the Chicago Great Western are to be used. The company was incorporated in April to build from Kansas City northwest 52 miles to Omaha, Neb. W. F. Rankin of Tarkio is one of the leading promoters. (May 26, p. 379.)

**KICKAPOO VALLEY & NORTHERN.**—An extension is reported proposed from the present terminus at Wauzeka, Wis., on the Chicago, Milwaukee & St. Paul, to run southeast via Lancaster and Platteville, to connect either with the Chicago & Northwestern or the Chicago, Burlington & Quincy.

**LOPEZ & GRANITE MOUNTAIN.**—Application is to be made in Pennsylvania for a charter for this line from Lopez to the top of Forkston Mountain. W. F. Little of Tunkhannock, Pa., is President, and Geo. W. Watson of Scranton, Secretary. The main office is to be in Scranton.

**LOUISVILLE & NASHVILLE.**—Alabama press reports state that the company is building eight miles of new line in Jefferson County, consisting of spur tracks and branches to coal mines.

**MANSFIELD & HOT SPRINGS.**—This company has been organized in Arkansas to build a railroad from Mansfield southeast about 113 miles to Hot Springs. Right of way is secured, according to report, and the necessary capital obtained. This is probably the same project recently referred to in this column under the St. Louis & San Francisco. (Aug. 25, p. 604; Sept. 8, p. 633.)

**MARICOPA & PHOENIX.**—Declaration of intention has been filed by this company for a line from Phoenix southeast about 50 miles to the Ray Mine near Florence, in the Mineral Creek district.

**MIDLAND OF NOVA SCOTIA.**—Track is laid from Windsor, N. S., east 43 miles to the Subenacadie River and this section is being ballasted. There is delay in building the long bridge across the river, which will not be completed before spring. Track laying is begun on the seven-mile section from the river to Truro. W. O. Strachan, of Montreal, and S. R. MacDonald of Stormont, Ont., have the contract. W. O. Strachan of Montreal is President. (Sept. 15, p. 650.)

**MIDLAND TERMINAL.**—The company has completed a spur at Elkton, Col., and is building a freight storage yard at Bull Hill station.

**MINNESOTA ROADS.**—The Merrill & Ring Lumber Co., of Duluth, will build a new logging road, it is said, in Lake County, to connect its recently bought timber lands with Lake Superior.

**MISSING LINK.**—Permanent organization was effected by the directors of this company at Blue Ridge, Ga., Nov. 4, with W. L. Albright, President, and Dr. Vaulx Gibbs, Secretary and Treasurer. The line is projected from Chattanooga, Tenn., east about 150 miles to Walhalla, S. C., on the Southern. (Sept. 15, p. 650.)

**MISSOURI PACIFIC.**—An officer writes that engineers are in the field making surveys for an extension from the Bagnall branch south of Jefferson



City, Mo., to run southwest about 80 miles to Springfield. (Nov. 3, p. 769.)

Surveys have been made, according to report, for the extension of the St. Louis, Iron Mountain & Southern from Conway, Ark., east 35 miles to Beebe.

**MONONGAHELA SOUTHERN.**—The Carnegie Steel Co., according to report, has acquired the rights of way and surveys for this line from Thompson Station, Pa., opposite Port Perry, to run southwest 30 miles to Finleyville, on the Baltimore & Ohio. It is stated that building is to be begun in the spring. The road will form a feeder of the Pittsburgh, Bessemer & Lake Erie.

**MONTANA.**—In addition to the extension from

In Idaho a road has been built from Potlatch southeast via Contract, Greer and Camla, to Kooskia, and is projected further south to Denver, Idaho. The proposed extension is from this line east over the Bitter Root Mts., to Missoula, Mont. From Lewiston a line has been built east via Lapwai to Cul de Sac, and is to be extended further eastward. Another proposed branch is from Vollmer northeast.

In North Dakota an extension is proposed from Edgeley southwest to Ashley, and thence west to Fort Yates, on the Missouri River. At cut-off is proposed from Dickey northeast to Wheatland, and another from Oakes to Englevalle. Another cut-off, running mostly in Minnesota, but with both termi-

ing of stockholders has been called for Dec. 14 to authorize the issue of \$180,000 interim bonds as collateral on the contract to build another nine miles of the road from Hull to Alymer, Que. (Oct. 20, p. 737.)

The company is rebalancing its road between Shawville, Que., and Alymer.

**PORT ANGELES EASTERN.**—This season the company, according to report, has built three-fourths of a mile of trestle at Port Angeles up to the point where the docks will begin. About six miles of grading is completed and about 10 miles of right of way cleared. The surveys run east from Port Angeles across Sequim Prairie around the headwaters of Sequim Bay and Port Discovery Bay to Quilcene. Surveys are now in progress for an extension to Shelton and Olympia, where connection will be made with the Northern Pacific. Wm. Martell of Port Angeles, Wash., is Superintendent of Construction, and E. A. Fitz Henry, Chief Engineer. (Nov. 3, p. 769.)

**PRINCESS ANNE, CAPE HENRY & LYNNHAVEN BAY.**—This company was chartered by the last Virginia Legislature to build from Virginia Beach, the terminus of the Norfolk, Virginia Beach & Southern line, north along the ocean about seven miles to Cape Henry. It is proposed eventually to run steamers from Lynnhaven Bay to Cape Charles. James R. Werth, formerly President of the Farmville & Powhatan RR., is at the head of the enterprise.

**PUEBLO & SOUTHWESTERN.**—This company proposes to build a railroad from Bessemer, Col., near Pueblo, to run southwest about 25 miles to Beulah. Surveys are reported made and right of way secured. The citizens of Beulah are asked to raise \$30,000. David J. Kelly of Denver is interested.

**ST. LOUIS, CARUTHERSVILLE & MEMPHIS.**—Track is reported laid for 15 miles on this line from Caruthersville, Mo., to Blythesville, Ark., 27 miles. The necessary rails are secured and the company hopes to have the line finished by Dec. 1. I. H. Burgoon of Caruthersville is General Superintendent. (Oct. 22, p. 737.)

**ST. LOUIS, CHICAGO & ST. PAUL.**—With reference to the improvements at Alton, Ill., an officer writes that a tract of 21 acres has been bought on which it is contemplated to build a yard consisting of about three miles of tracks at first, to which additions will be made according to requirements. On the main line reverse curves and grades are being eliminated along the banks of the Mississippi. An incline track will be built at Alton for the accommodation of business between the railroad and the river steamers. (Nov. 10, p. 738.) A number of other improvements are contemplated. (Official.)

**SALUDA & JOHNSTOWN.**—This company proposes to build from Saluda, S. C., on the Southern, south 13 miles to Johnston. The officers are given under Elections and Appointments.

**SEABOARD AIR LINE.**—Track laying is reported begun on the line from Cheraw, S. C., southwest about 50 miles to Camden, on the Florida Central & Peninsular. (Aug. 18, p. 589.)

Surveys are practically completed for the proposed extension from Athens, Ga., southeast about 100 miles to Augusta. (Sept. 1, p. 620.)

**SEARCY & DES ARC.**—This company, which is a combination of the Searcy & West Point and the new Des Arc & Northern, proposes to let contracts, according to report, for a further extension of four miles. (D. A. & N., Sept. 8, p. 633.)

**SIERRA & CALIFORNIA.**—Grading is reported completed to a point 12 miles beyond Carters, leaving only four miles more to grade on the extension westward from Sonora, Cal. Track laying has been resumed west of Carters. (Oct. 27, p. 755.)

**SOUTHERN.**—A franchise has been granted for an extension of tracks at Mobile, Ala.

**SOUTHERN PACIFIC.**—An officer writes as to the work proposed at Salinas, Cal., that surveys are in progress for switch yards and other improvements. The Salinas station has been established as a terminal for freight trains, to come into use when the coast line between San Francisco and Los Angeles is completed. About 1½ miles of side tracks will be laid at once, and in due course the usual round house, intermediate shop facilities, coal plant and water supply fixtures will be added. (Oct. 13, p. 720.)

With reference to the proposed improvements at Galveston, Tex., an officer writes that the company has acquired a most favorable location for future business and the direct exchange of traffic between rail and ship, and has begun improving the ground there. There are as yet no detailed plans. (Oct. 13, p. 720.)

Announcement is reported made of surveys now in progress for a cut-off about 100 miles long in northern Utah from a point near the western State boundary, to run east across the North Arm of Salt Lake to Ogden. It is hoped to find a route with a maximum depth of 12 ft., and an average depth of not over five ft. There will be two sections of trestle work, each about five miles long. The cut-off would save about 50 miles and avoid heavy grades at Promontory.

The New York, Texas & Mexican on Nov. 7 filed an amendment to its charter in Texas for the proposed extension from Wharton southeast down Caney River, 30 miles. (Nov. 3, p. 770.)

The Oregon & California line has asked the City Council of Portland, Ore., for permission to extend its line in that city to connect the Jefferson St. station with the terminal grounds.

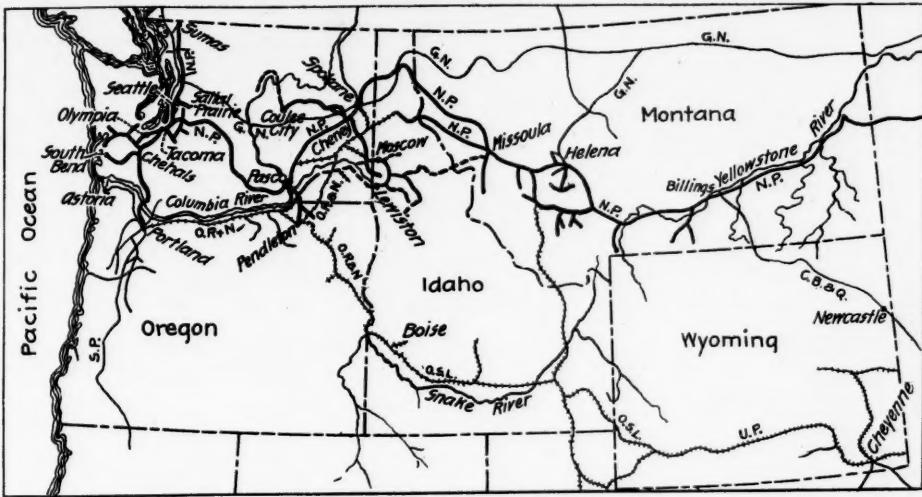
The company is making extensive improvements along Artego Hill, a few miles west of Santa Barbara, Cal. This includes the building of a retaining wall 70 ft. high, and straightening of the tracks.

Right of way is being secured for a cut-off between Santa Barbara, Cal., and Goleta. This will be about eight miles long and eliminate a number of curves.

About a mile of additional track is reported built on the Santa Ana & Newport extension toward Benedict, Cal.

The extension of the Oxnard Branch from Oxnard, Cal., east 34 miles to Chatsworth Park has been completed as far as Sonris, 13 miles, and grading is in progress between that point and Sami, seven miles more. (July 25, p. 548.)

The company is putting in 75-lb. rails on the double track line between West Oakland, Cal., and Port Costa, 14 miles.



Proposed Extensions of the Northern Pacific.

Leadboro, Mont., to Martinsdale, just completed (Nov. 20, p. 737), surveys are reported made from Martinsdale southeast, via Merino, Winnecock and Shawmut, to Billings. Other surveys have been made north from Merino via Ubet, Utica, Philbrook and Sanford to Geyser and Great Falls. Another branch is proposed to Lewistown.

**NASHVILLE FLORENCE & NORTHERN.**—Application has been made in Tennessee for a charter for this company, with a capital stock of \$1,000,000, to build a railroad from Nashville north to Louisville, Ky., and south and west to Florence, Ala. Jerry Baxter, who is building the Tennessee Central, is an incorporator.

**NEW YORK CENTRAL.**—The connecting road between the main line at Hoffmans, N. Y., and the West Shore line at Rotterdam Junction, is nearing completion. This is a double track line, 1½ miles long, and is carried over the main tracks of the New York Central by a plate girder bridge. (Aug. 4, p. 561.)

Rails have been laid on the switch to New York Mills near Utica.

**NEW YORK, NEW HAVEN & HARTFORD.**—O'Brien & Sheehan, New York, are reported to have the contract for a portion of the improvements at Bridgeport, Conn. (Nov. 3, p. 769.)

Surveys are reported in progress for a second track between New Haven, Conn., and Derby Junction, 10 miles.

**NORFOLK & WESTERN.**—A dispatch from Iron-ton, O., states that the company will begin at once to build an extension of the sidings to the Etna furnace in that city.

**NORTHERN PACIFIC.**—In the last annual report, President Mellen gives a statement as to the relations between his company and the Oregon Railroad & Navigation Co., in railroad building in the Clearwater District in Idaho and Montana, as follows:

In the summer of 1898, with the concurrence of the Oregon Railroad & Navigation Company, expressed in writing, the construction of the line of this company (incomplete from the north line of the Nez Perce Reservation since 1890) was resumed and completed from Juliaetta to Lewiston, Idaho. As it is the only railway operating within the drainage of the Clearwater River or within the limits of the Nez Perce Reservation, and as said territory and drainage form part of territory which by contract of 1880 was conceded by the predecessor of the Oregon Railroad & Navigation Company to the Northern Pacific Railroad Company, extensions have been planned therein.

About sixty miles of line were placed under contract, from a connection with this company's Juliaetta-Lewiston line at the junction of the Potlatch River with the Clearwater, eastwardly along the Clearwater River to the mouth of Cottonwood Creek; and fifteen miles, from the junction of Lapwai Creek with the Clearwater River, southerly into the Reservation along the drainage of Lapwai Creek.

Exception to the building of such lines was taken by the Oregon Railroad & Navigation Company, although to reach the same territory by its lines would require the construction of at least seventy-five miles, thence paralleling existing lines of this company for about forty miles before any portion of the territory in dispute could be served.

Various meetings have been held by the officials of the two companies for the purpose of reaching an adjustment, and finally an understanding has resulted to the effect that the present construction by this company, as above stated, shall be completed, and construction by the Oregon Railroad & Navigation Company shall be discontinued for a period of six months, or until February 5, 1900, thus giving time for further negotiation with a view to a permanent agreement.

Your Directors believe that in the construction thus far authorized the company has in no way infringed upon the rights of any other company; that this company is occupying only territory that was conceded to it in 1880 by the predecessors in the interest of the present Oregon Railroad & Navigation Company, and that your rights in the premises are plain.

A map which appears in the same report shows some proposed extensions by the company which are, briefly, as follows:

In Washington, from Coulee City northwest to the Columbia River, and thence southwest down the river; from Pleasant View east along Snake River to Lewiston, Idaho, with a branch to Pullman; from Riverside east to Bolles, and from Dayton east several miles toward Lewiston. In the west part of the State a cut-off is proposed, from Kirkland to run east of Seattle to Benton.

nals in North Dakota, is proposed from Grand Forks north along the east side of the Red River to Drayton, N. D.

In Manitoba the company is building two lines from Portage la Prairie—one to run west to Neepawa, and the other north to Lake Manitoba.

Track laying is reported begun on the spur from Wallace, Idaho, to coal mines, about 3½ miles. (Oct. 27, p. 753.)

**NORTHWESTERN ARKANSAS & INDIAN TERRITORY.**—The Arkansas State Penitentiary Board has agreed to furnish the Arkansas Construction Co. from 60 to 100 convicts, to be used in building this line from Fayetteville, on the Missouri Pacific, to run southwest about 15 miles to Boonsboro. Work was to be begun Nov. 13. W. A. Wright is Manager of the Construction Co.

**ONTARIO ROADS.**—Mr. D. Blain of Toronto, Ont., is Managing Director of a company which proposes to build a railroad from Toronto north 66 miles to the mouth of the Nottausaga River, which enters Georgian Bay several miles east of Collinwood. The company was originally incorporated under the title of the Huronontario Ry., and later the name was altered to the Ontario Ship Ry. Co. Application is pending with the Government for a bonus. There are no locating surveys as yet, but the character of the work is very easy. The maximum grade southward is 20 ft. per mile, and northward 26 ft., with practically no curves except on the watershed. The bridging will be very light. It is proposed to use 110-lb. rails, with locomotives from 220,000 to 250,000 lbs, with hopper cars carrying from 60 to 110 tons. The office of the company is at present 572 Temple Building, Toronto. (Official.)

Messrs. Fraser & Perkins of Ottawa have given notice of application to the Dominion Parliament to build a railroad from a point on the French River, to run east through the districts of Parry Sound and Nipissing, and the County of Renfrew to Pembroke, and thence to Portage du Fort. Also, to build bridges across the Ottawa River to connect with any line within three miles of its main line.

**OREGON MIDLAND.**—This company, already noted last week (p. 738), was incorporated in Oregon Nov. 7, with a capital stock of \$1,000,000. The road runs from Klamath Falls southwest about 60 miles to a point on the north side of Klamath River, near where the Southern Pacific crosses the river in the State of California. The company will also operate steamboats on rivers and lakes in connection with the railroad. The incorporators are: George T. Baldwin and R. S. Moore, Klamath Falls, Ore.; David Horn, Syskiyou, Cal.; L. W. Van Horn, W. J. Wood and J. A. McCall, Ashland, Ore. J. A. McCall is Engineer in charge of construction.

**OREGON RAILROAD & NAVIGATION.**—The company has completed the entire line from Wallula Junction, Wash., northeast 65.7 miles to Grange City. By this cut-off about 23 miles will be saved on the company's line. (Oct. 13, p. 719.)

**PENNSYLVANIA.**—A branch will be built, according to report, in Blair County, Pa., to run from Flowing Spring to Turkey Valley, four miles, connecting rock quarries.

A number of improvements are being made along the line of the Allegheny Valley, including the doing away with a number of sharp curves. The entire line is to be equipped with 85-lb. rails in place of the 60-lb. steel now in use.

C. A. Sims & Co., of Philadelphia, contractors, are building four small branches for this line, six miles south of Hallidaysburg, Pa.

**PENNSYLVANIA COMPANY.**—A number of large improvements are proposed on the Pittsburgh, Cincinnati, Chicago & St. Louis, between Dinsmore Tunnel and Wheeling Junction, on the main line. These include a number of cut-offs at Hanlins, Colliers and other points.

**PHILADELPHIA & READING.**—Double tracking is reported ordered of the 8.9 miles yet remaining of the Lebanon Valley branch, which will complete double tracking the entire distance between Reading, Pa., and Harrisburg.

The company has enlarged its yards at Newberry, Pa., which now have a capacity of about 1,800 cars.

**PONTIAC PACIFIC JUNCTION.**—A special meet-



**TENNESSEE CENTRAL.**—Van Buren County Tenn., has voted to lend this company \$133,000 to build this line through the county. Jerry Baxter of Nashville, Tenn., is President. (Oct. 13, p. 720.)

**TENNESSEE COAL, IRON & RAILROAD.**—A switch will be built by this company from the line of the Southern at Russellville, Ala., to its washers nearby.

**TEXARKANA, SHREVEPORT & NATCHEZ.**—This road has been completed into Shreveport, Ia. It runs from Texarkana, Ark., south about 70 miles to Shreveport. (Sept. 1, p. 620.)

Announcement is made that the company intends to extend it in the near future to Natchez, Miss., about 150 miles.

**TEXAS & PACIFIC.**—About 18 miles of track is reported completed on the extension of the Port Allen branch from Port Allen, La., north 25 miles up the Mississippi River to New Rhodes. The Grigsby Construction Co. of Dallas, Tex., has the contract. (June 10, p. 439.)

**ULSTER & DELAWARE.**—Nearly all the grading is reported completed and about six miles of track laid on the extension from Bloomville, N. Y., north-west 21 miles to Oneonta, N. Y., on the Delaware & Hudson. (Oct. 20, p. 738.)

**VANDALIA.**—The court has authorized the receiver to buy 4,000 tons of 85-lb. rails to replace 30 miles of 60-lb. rails on the line between Indianapolis and East St. Louis.

**VERA CRUZ & PACIFIC.**—Joseph Qualey & Co. of Cincinnati, O., have given up the contract for building the section of this line from kilometer 100 south to Santa Lucetia, Mex., 123 miles. A new contract will be let soon. (Sept. 22, p. 668.)

**WABASH.**—The company has completed the rebuilding of its old line from Hardy, Ia., to Albia. (July 7, p. 500.)

It has also finished track laying on the Moulton, Albion & Des Moines extension from Moulton, Ia., north 23.3 miles to Albia. The new and reconstructed lines will give the company its shortest route between St. Louis and Des Moines. The first passenger trains are to be run Nov. 19. (Nov. 10, p. 788.)

**WADLEY & MOUNT VERNON.**—Surveys are completed, according to report, for a branch to the town of McRae, Ga. The line now runs from Wadley to Rixville. T. J. James of Wadley is President. (Aug. 4, p. 561.)

**WINONA & WESTERN.**—Several miles of grading are completed, according to report, on the extension from Simpson, Minn., north 7.55 miles to Rochester, on the Chicago & Northwestern. Three miles of track was to be laid this week. (Sept. 29, p. 686.)

**YELLOWSTONE PARK.**—Kahrman & Jennings of Butte, Mont., have the contract for building an extension from the present terminus at Hoffman's Mine, Mont., to the Lower Trail Creek Mines, three miles.

#### GENERAL RAILROAD NEWS.

**ALEXANDER & RICH MOUNTAIN.**—This property was sold at public auction in front of the court house at Parkersburg, W. Va., Nov. 18, to Hart Bros. & Co. of Clarksburg, W. Va., for \$39,667. (Oct. 6, p. 702.)

**CHICAGO & WEST MICHIGAN.**—Stockholders of the Chicago & North Michigan, at a recent meeting at Grand Rapids, Mich., approved of the transfer of their property to the C. & W. M., that it may be included in the new Pere Marquette Company. (Nov. 3, p. 770.)

**CHICAGO, INDIANA & EASTERN.**—The company has filed notice of an increase of its capital stock from \$210,000 to \$420,000. This is to include the sections now building. (Oct. 6, p. 701.)

**CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS.**—Seven consolidated 6 per cent. mortgage bonds of the Cincinnati, Indianapolis, St. Louis & Chicago, a loan of 1880, have been drawn for the sinking fund, to be paid May 1, 1900, at 105 and interest. (May 19, p. 361.)

**COLUMBUS & NORTHWESTERN.**—Special Master Irvin Belford has approved the decree that the C. & N. W. be placed in the hands of a receiver separate from the Detroit & Lima Northern, and that it be sold at auction. The claim of the Ferguson Construction Co., New York, for about \$70,000, is made a lien prior to the claims of W. B. Strang and Chas. N. Haskell, which amount to about \$690,000. The northern division, which is the Detroit & Lima Northern, is to assume the other indebtedness of the southern division, and Strang and Haskell are to release their claims against that division, and also to surrender \$960,000 of common stock, and an equal amount of first mortgage bonds. (Oct. 27, p. 754.)

**DARDANELLE & RUSSELLVILLE.**—This line, running from Dardanelle, Ark., to Russellville, five miles, is reported sold to a Chicago syndicate which is to increase its capitalization and may extend it.

**DENVER & SOUTHWESTERN.**—This company has been incorporated in Colorado, with a capital stock of \$5,000,000, of which \$2,000,000 is 5 per cent. preferred, for the consolidation of the Florence & Cripple Creek and other properties already noted. The incorporators are: Henry Ware, Brookline, Mass.; James L. Walcott and James Verdin, Dover, Del. (Oct. 27, p. 754.)

**DOMINION ATLANTIC.**—Application is to be made to the Dominion Parliament to permit the additional issue of capital stock by this company; also, for conveyance to the Windsor & Annapolis Ry., on Dec. 31, 1895, of a mortgage trust deed; also, the issue of first and second debenture stocks, for £940,000, and to have power to borrow money on shops and other outside property. (March 24, p. 220.)

**DULUTH, ST. LOUIS & KANSAS CITY.**—Judge Taft of the United States Circuit Court of Appeals at Cincinnati, O., on Nov. 11 issued a decree directing the sale of this property on a date to be fixed hereafter, not later than Feb. 15, 1900. Frank Shaeffer of Cincinnati, and Morrill Mores of Indianapolis

were appointed Master Commissioners to succeed the men who had resigned. (Nov. 3, p. 770.)

**KANSAS CITY, PITTSBURGH & GULF.**—The modified plan of reorganization agreed upon between the Philadelphia committee and the Harriman interests provides for the operation, under one management and ownership, of the K. C., P. & G., and both its terminals, the Kansas City Belt Line and the Port Arthur Channel & Dock Co. The fixed charges under the new plan aggregate \$785,925. The new company will issue securities as follows: First mortgage 50-year 3 per cent. gold bonds, \$30,000,000; 4 per cent. non-cumulative preferred stock, \$21,000,000; common stock (to be in voting trust for five years), \$30,000,000. Of the mortgage bonds, \$3,000,000 is to be reserved for cash requirements of the new company; \$3,802,500 for future requirements, and the remainder exchanged against old securities. Of the preferred stock, \$2,400,000 goes to participating stockholders or the syndicate; \$3,000,000 is to be sold to the syndicate; \$582,200 is to be reserved for future requirements and the rest exchanged against old securities. Of the common stock, \$438,750 is reserved for future requirements; \$24,000,000 goes to participating K. C., P. & G. stockholders, and the rest in exchange for securities of the subordinate companies. The only securities assessed will be \$10 per share against the capital stock of the K. C., P. & G., for which \$10 in preferred stock will be given. A syndicate has been formed which buys \$3,000,000 of new bonds, and \$2,000,000 of new preferred stock, and also underwrites the \$10 assessment to provide adequate working capital and to discharge all obligations. (Nov. 10, p. 788.)

**LAKE ERIE & DETROIT RIVER.**—The London & Port Stanley, leased by this company, has called a special meeting to authorize the issue of 10-year 6 per cent. bonds, to be given to the city of London as collateral security for moneys advanced in connection with the L. E. & D. R.

**LOUISVILLE, EVANSVILLE & ST. LOUIS.**—Judge Baker of the Federal Court at Indianapolis, Ind., has denied the intervening petition of 30 bondholders of the Huntington, Tell City & Cannelton RR., for an order for an exchange of their bonds for L. E. & St. L. consolidated bonds, under the agreement of 1889. He holds that the exchange cannot be made because the company is in the hands of a receiver and because these bondholders have delayed nine years in asking for the exchange. (Sept. 15, p. 650.)

**MARIETTA, HOCKING & NORTHERN.**—This line, which runs from Kingston, O., to Adelphia, 10 miles, has been abandoned and the materials are being removed.

**NORTHERN PACIFIC.**—Notice is given that \$4,490,000 of general first mortgage bonds (the entire outstanding issue) has been called for payment Jan. 1, interest to cease at that date. These bonds are to be taken up from the proceeds of recent land sales.

**PORTLAND, SACO & PORTSMOUTH.**—The Massachusetts Railroad Commissioners gave a hearing last week on the petition of the Boston & Maine for authority to issue 26,813 shares additional B. & M. stock, for exchange of shares of the P. S. & P., and other properties recently purchased by the B. & M. There was no opposition. (Sept. 29, p. 686.)

**SOUTHWESTERN ARKANSAS & INDIAN TERRITORY.**—Judge John A. Williams of the U. S. Circuit Court at Little Rock, Ark., Nov. 4, refused to confirm the sale of this property, made by Special Master Waters on Oct. 10 to Wm. Grayson and Colonel McLeod of St. Louis. The ground for the refusal is that the receiver has received a bid offering \$145,000 for the railroad, and \$15,000 for the mill property, which is \$25,000 in excess of that paid by Grayson & McLeod. (Oct. 20, p. 738.)

**SOUTHERN PACIFIC.**—The Pacific Improvement Co., which for a number of years owned a controlling interest in the capital stock of the S. P., the Oregon & California, and other allied properties, is gradually closing up its affairs. The stock is owned by C. P. Huntington, Mrs. Leland Stanford, the Crocker estate and the Hopkins-Searles interests.

**WISCONSIN CENTRAL.**—Notice has been given by this company to the Chicago Terminal Transfer that the rights of the company to use said terminals will terminate Nov. 30. This is owing to the failure to agree on terms for the use of the same. The terminals were occupied by the old W. C. Co., and under the new reorganization the arrangement has been temporary. (Oct. 27, p. 754.)

#### TRAFFIC.

##### Traffic Notes.

Local newspapers report that the Atchison, Topeka & Santa Fe now limits all local tickets to one day after the date of sale.

The city of Memphis imposes a tax on the freight agents of railroads and transportation lines which do not touch that city. Lately 16 such agents have been notified to pay to the city treasury \$25.25 for one year's tax, but thus far all but four of the 15 agents have neglected to comply.

Mr. F. O. Becker has been elected Commissioner of the Galveston Freight Bureau. Mr. Becker was formerly in the traffic department of the International & Great Northern, being for some time Assistant General Freight Agent. Since 1896 he has been one of the Board of Managers of the Southwestern Freight Bureau at St. Louis.

A session of the Interstate Commerce Commission began at St. Louis Monday of this week to investigate a complaint filed with the Commission against the Southern Pacific alleging violation of the Interstate Commerce Law by making a rate from Atlantic seaports by way of New Orleans and other gulf ports to the Pacific Coast so low that it is impossible for other transcontinental lines to compete.

##### Long and Short Haul Again.

The Interstate Commerce Commission has announced its decision in the matter of alleged violations of the Act by the St. Louis & San Francisco Railway Company. The opinion is by Chairman Knapp. The case and decision are shortly stated as follows: The rates by the St. Louis & San Fran-

cisco on live poultry in carloads to Chicago are higher from Marshfield, Mo., than for the longer distances from Springfield and other more distant stations on its line. It meets the competition of other roads at Springfield and various junctions to the west of Springfield, yet nowhere west of Springfield does the company or any of its competitors make the greater charge for a shorter than for a longer distance on this traffic. The rates on live poultry from Springfield and points west thereof are not unreasonably low. This carrier makes as low a rate to St. Louis from Marshfield as from Springfield. The circumstances and conditions applying from the points involved on the traffic in question are not substantially dissimilar. The investigation covered freight articles generally, but the testimony was confined to live poultry. The Commission holds that the greater charge for the shorter distance from Marshfield constitutes a departure from the general rule of the fourth section, which the carrier was bound to justify, and that such higher rate, if found to be without sufficient excuse, must also be deemed unreasonable and undue prejudice in violation of the third section. The St. Louis & San Francisco Company, engaged with other carriers in through transportation to Chicago from numerous points on its road, including Springfield and Marshfield, cannot lawfully call itself merely a local carrier from Marshfield while engaged in through carriage from Springfield and other points on its line, and thereby justify higher rates to Chicago for the shorter distance from Marshfield than for the longer distance from Springfield and more distant points of shipment. The decision of the United States Supreme Court in the Social Circle case is applied.

##### Rates on Coal in Arkansas.

The Railroad Commissioners of Arkansas have issued to the railroads a tariff (No. 6) on coal and coke, in carloads, to go into effect Nov. 20. Independent railroads less than 50 miles long are exempted. Following are samples of the rates: For 35 miles or less, coal 55 cents a ton; pea coal and slack mixed, 50 cents; slack, 40 cents; 100 miles, 95, 80 and 70 cents; 200 miles, \$1.40, \$1.30, \$1.20; 300 miles, \$1.90, \$1.80, \$1.70. The minimum carload is 25,000 lbs. A shipment going over two or more roads may be charged local rates on each road, but not more than the 300-mile rate for the whole journey. Where there are competing lines the longer lines may use the short-line rate without affecting rates to intermediate stations.

##### Chicago Traffic Matters.

Chicago, Nov. 15, 1899.

A sub-committee of the Industrial Commission is now meeting in this city investigating alleged discriminations in rates and other matters relating to railroads as carriers. But one bona fide railroad officer has accepted the Commission's invitation to talk before it. The Commission will be in session here about a week and the following witnesses have agreed to appear:

Nov. 16—A. A. Kennard, representative of the Chicago Butter and Egg Board, Chicago, Ill.

Nov. 18—Chester A. Fuller, Norfolk, Neb., Business Men's Association; E. P. Beacon, Milwaukee Chamber of Commerce; C. H. Greeley, commission merchant, Chicago, Ill.

Nov. 23—A. B. Stickney, President Chicago Great Western Railway.

Nov. 24—G. F. Woffindin, Chairman Freight Committee Great Northern; J. E. Ripley, Chairman Western Classification Committee Great Northern.

Nov. 25—J. F. Tucker, Chairman Central Freight Association, Chicago; Edgar H. Evans, representing the Indianapolis Board of Trade.

Nov. 27—Representative National Grange Patrons of Husbandry.

The Chicago Board of Trade sent a letter to the Commission on pooling, which will be read before the Sub-committees at its Chicago meeting.

Executive officers of the Chicago-St. Paul roads have agreed to be good again for a time. It was resolved that until Dec. 31 all would strictly refrain from any dealings with brokers or from doing any other irregular thing that would tend to disturb the surface, and that the regular printed tariffs would be adhered to on and after Nov. 20. This means the cancellation of the low \$7.50 one-way rate that has been in effect in this territory during the past two or three months, and a substitution of the regular \$11.50 rate.

The appointment of a general western passenger agent for the Lackawanna with office in this city is taken to mean that this road has both eyes on a booming of its through New York-Chicago business. Mr. Cullen, who has had charge of the immigrant bureau of the western lines in New York, will be the Lackawanna's new representative here.

Homeseekers' rats are to go in throughout the Central Passenger Association's territory at once. Although the roads in this organization have been quoting these rates independently for several months there has not been any uniform action on the subject. The excursions will be run the first and third Tuesday of each month, and the rate will be one fare for the round trip, plus \$2. The same set of lines have also agreed to make a rate of one fare for the round trip, plus \$2, for the big Methodist general conference that convenes in this city in May.

The Burlington road has taken action that will tend to greatly increase its through passenger business from its Chicago suburbs. The through trains on this line have never stopped in either direction at any of the numerous and populous suburbs between Aurora, 38 miles out, and the Union station in this city. Hereafter the through trains on this line, in both directions, will stop on signal to receive passengers and stop to let off patrons from the west at the four larger suburban towns, Riverside, La Grange, Hinsdale and Downer's Grove. A majority of the roads running out of Chicago in all directions have been making these suburban stops for some time.

On Jan. 1, commodity rates in Central Freight Association territory are to give way to regular classification. This will have the effect of advancing rates considerably.

The Northern Pacific road has notified the New England lines to make the same tourist rates from New England territory to California points over the Northern Pacific as are quoted over the Canadian Pacific.

A revised tariff of passenger rates from trans-Missouri points to Hawaii has been issued by the Union Pacific system.

Arguments in the \$2 per car stock yards trackage charge case have been close and the case submitted to Judge Kohlsaat, who has taken the matter under consideration.